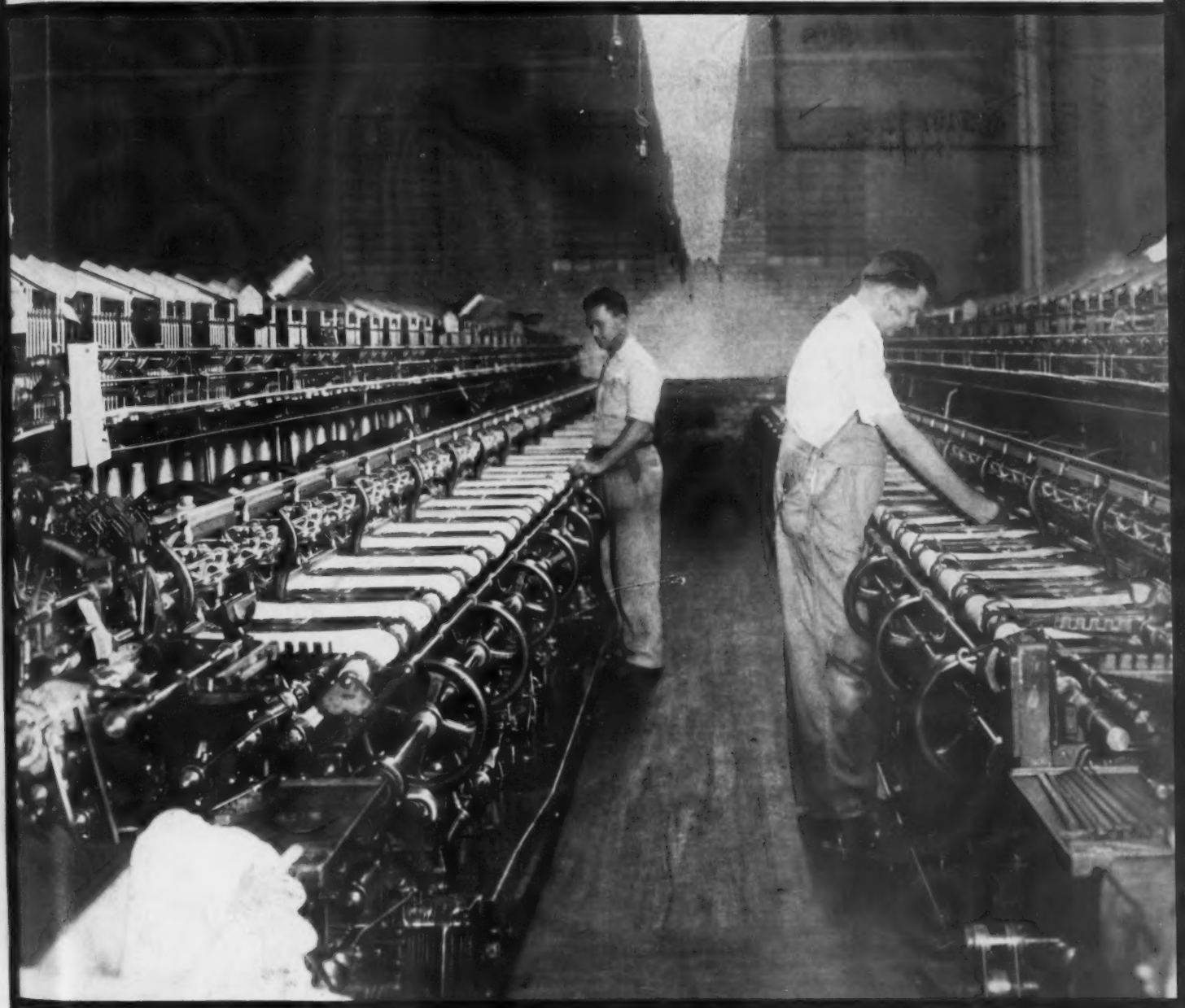
TECHNOLOGY DEPARTMENT

TEXTILE WORLD

A McGraw-Hill Publication ---------- APRIL • 1947

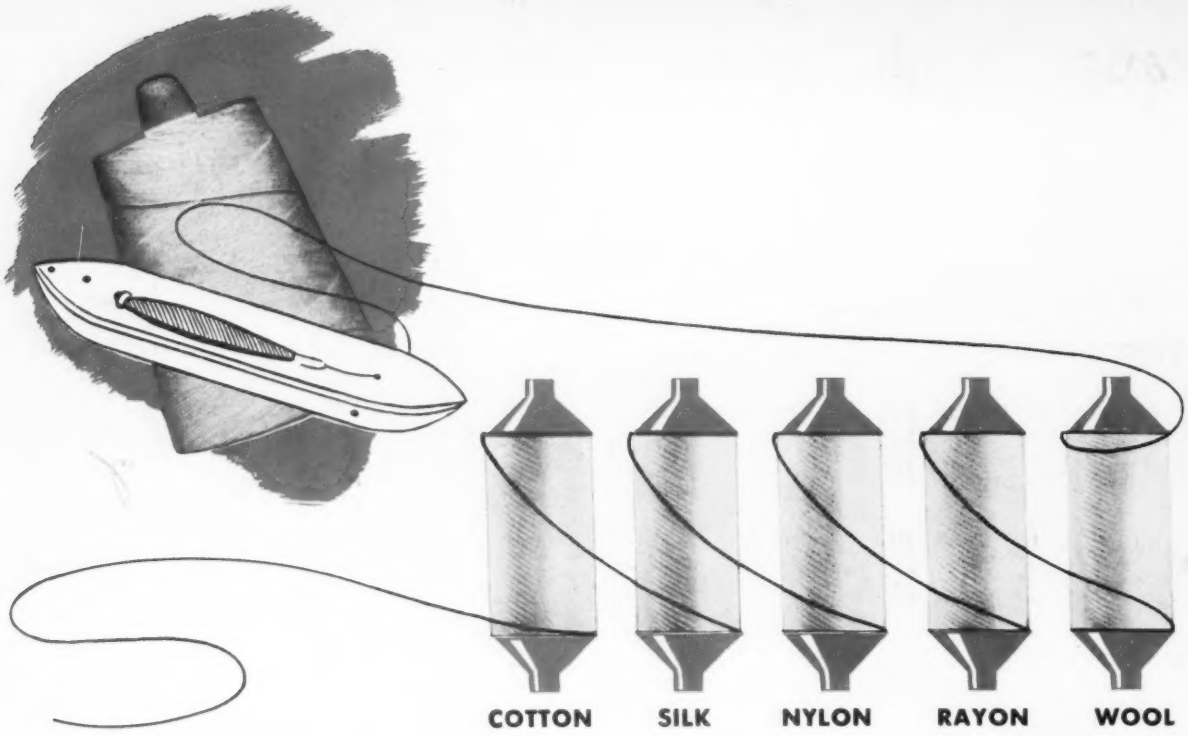


KNITTING ARTS EXHIBITION NUMBER

Featuring

KNITTING FLOW CHART

GUIDE TO EXHIBITORS



Textile ENGINEERING

Plans and designs for all types of projects related to the textile industry. Appraisals, modernization studies, machinery layouts, air-conditioning, power and water filtration plants, and other phases of textile engineering.

ROBERT AND COMPANY
INCORPORATED
Architects and Engineers
ATLANTA

TWENTY-NINE YEARS' NATIONWIDE EXPERIENCE IN INDUSTRIAL AND TEXTILE DEVELOPMENT

TEXTILE WORLD, Vol. 97, No. 4, April, 1947. Published monthly by McGraw-Hill Publishing Co., Inc. (Bragdon, Lord & Nagle Division). Publication Office, 99-129 North Broadway, Albany, N. Y. RETURN POSTAGE GUARANTEED. Editorial and Executive Offices, 330 W. 42nd Street, New York 18, N. Y. Allow at least ten days for change of address.
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Draper High Speed Looms

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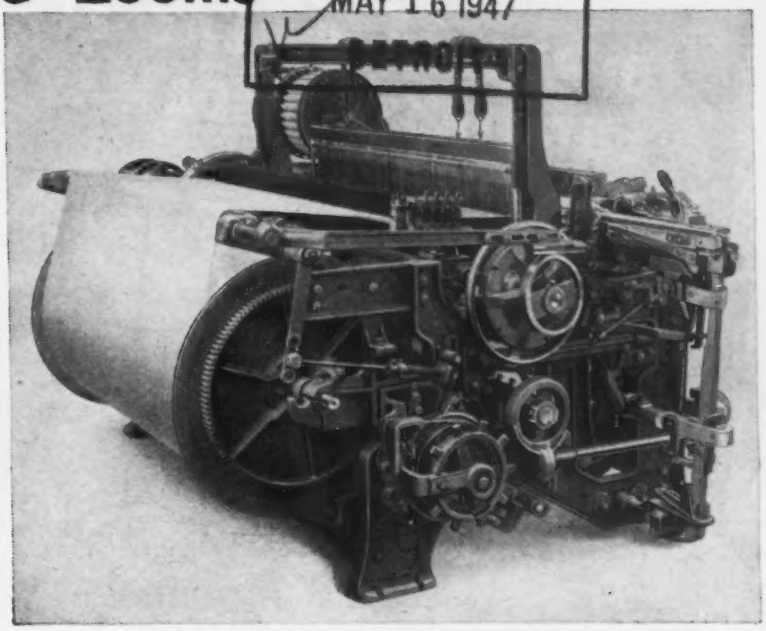
meeting

today's needs

. . . and tomorrow's



Super High Speed X-2 Model Loom

today . . . . . the cry is production, production and still more production. Mills everywhere . . . using looms of every age and vintage are striving night and day to meet the pent up demand. Competition is a forgotten word.

tomorrow . . you will still need production . . . but it will be production on a higher quality, lower cost basis. Markets will be saturated . . . ruthless competition will be the new order . . . only the most efficient will survive.

how you can meet the need

today . . . . . Keep your looms in the best operating condition. Be sure your oil and cleaning schedules are faithfully carried out . . . check carefully for worn parts when the warp is changed . . . use our latest improved parts. *But above all decide now to completely equip your mill with new X series High Speed Looms. Call or write today and reserve your place on our building list.*

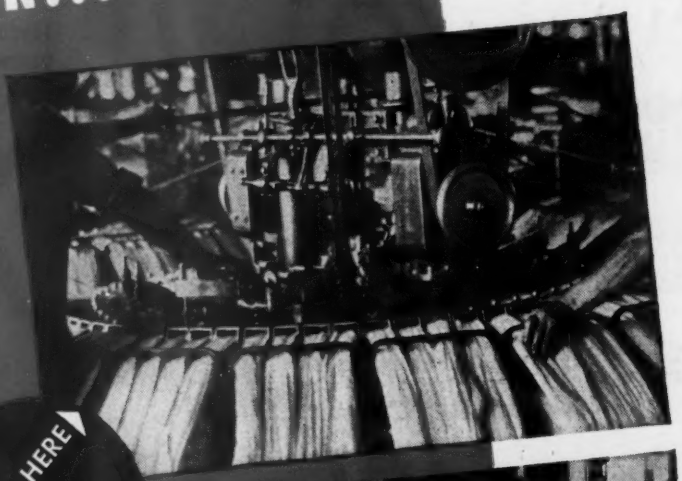
tomorrow . . There will be a new era of competition. You will need these faster running looms with their proven record of producing more and better cloth at less cost. With these looms, plus an efficient organization you will meet tomorrow's needs with confidence.

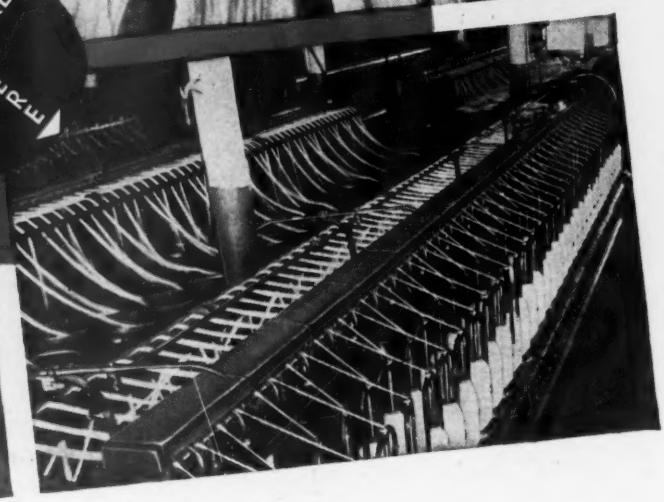
Retaining leadership through research...

D DRAPER CORPORATION
HOPEDALE - MASSACHUSETTS U. S. A.

3 PLACES WHERE EFFECTIVE LUBRICATION CAN...

PREVENT OIL STAIN





HERE HERE HERE

TOP ROLLS, combs, looms — wherever bearings are close to the material being worked, you need a lubricant especially made to prevent oil spotting—*Texaco Stazon.*

Stazon STAYS ON the bearing surfaces . . . doesn't splatter, creep or drip . . . in spite of shocks and vibration, and pressure and temperature variations. Nor does it form gummy deposits. Yet *Stazon* is fluid enough to be applied with an ordinary oil can.

Texaco Stazon remains stable even in high humidity and, because it stays on the job, your machines get longer-lasting protection with fewer applications. You can get *Stazon* in a range of viscosities to meet all your needs.

Assure greater output of spot-free yarn and fabric by using *Texaco Stazon.* For Texaco Products and Lubrication Engineering Service call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants

FOR THE TEXTILE INDUSTRY

Tune in...TEXACO STAR THEATRE presents the NEW TONY MARTIN SHOW every Sunday night. See newspaper for time and station.

TABLE OF CONTENTS

Classified According to Reader Interest

← MILL DEPARTMENTS — FIBER DIVISIONS →

YARN PRODUCTION	WEAVING	KNITTING	FINISHING	ENGINEERING	MISCELLANEOUS	FEATURES ARTICLES	PAGE	COTTON	SYNTHETICS	WOOL	MISCELLANEOUS
Y	W	K	F	E	M	THIS Is the Time *(Editorial)*	4	C	S	W	M
		K	F		M	KNITTING Flow Chart	89	C	S	W	M
Y				E	M	Improvements for Better NYLON THROWING	97		S		
Y						COTTON-STORAGE Practices and Fire-Loss	100	C			
			F			Drying Important to SHRINK-PROOF WOOL	102			W	
Y				E		OPENER ROOM Designed For Best Cleaning	104	C			
Y	W	K	F	E	M	INDIRECT LABOR Accurately Controlled	106	C	S	W	M
Y						SPINNER'S TASK Can Be Set Quickly	108	C	S	W	M
				E	M	Temperature Factor in AIR-CONDITIONING	111	C	S	W	M
			F			Fire-Resistant Agents Reduce FLAME Danger	113	C			
Y	W	K	F	E	M	A TEXTILE JOB Is a Good Job	115	C	S	W	M
				E		Functionalism Is Rule for MODERN MILL	117	C	S	W	M
			F	E		BLEACHING-RANGE Efficiency	119	C			
	W	K		E		Electronic WARPER DRIVE	121	C	S		
Y	W	K	F	E	M	ALUMINUM in Textile Equipment	123	C	S	W	M
Y		K	F	E	M	Guide to KNITTING ARTS EXHIBITION	193	C	S	W	M
Y					M	Time-Recorder for WOOLEN-CARD Efficiency	276			W	
						KINKS AND SHORT-CUTS					
	W		F			Reverse-Side Lighting Aids INSPECTORS	132	C	S	W	M
Y						Feed-Guide Plates Aid in Making LAP	132	C			
		K				HALF-HOSE Knitters Should Try Soluble Yarn	134	C	S	W	M
			F			PIN-DRYER Operator Uses Ladder	134	C	S	W	M
	W			E		Tools Aid in Replacing Damaged FERRULES	134	C	S	W	M
Y						Dip Impurities From SOAKING Solution	136		S		M
Y				E		CARD-ROOM Counterbelt Cleaned Continuously	136	C	S	W	M
				E		Quarter-Drive BELTS Have Half Twist	136	C	S	W	M
	W					WARP ENDS Protected With Wooden-Slats	136	C	S	W	M
Y						Double-End Sizing Speeds NYLON THROWING	138		S		
				E		Cleanliness in Cast-Iron WELDING	138	C	S	W	M
				E		ADJUSTABLE SUPPORT Used as Jack	138	C	S	W	M
				E		POP VALVE Exhaust Stops Air Compressor	138	C	S	W	M
						IN OTHER DEPARTMENTS					
Y						Cleaner WOOL ROVING Produced	125			W	
Y				E		COLLECTOR Replaces Bottom Clearers	126	C	S		
Y						Nylon-Plastic TRAVELER for Higher Speeds	126	C	S	W	
	W					VELON Filament Makes Soft-Hand Fabrics	127		S		
				E		Selective-Speed DRIVE Offers Four Ratios	127	C	S	W	M
		K				400-Needle Machine Knits SEAM-FREE HOSE	127		S		M
				E		Freight SAVINGS Pay for Paper Pallets	127	C	S	W	M
		K				Nylon-Processing Oils Cut END BREAKAGE	130		S		
			F			MOTH-CONTROL Process Uses DDT Compound	130			W	
			F			Dyeing Assistant Improves PENETRATION	130	C	S	W	M
		K	F			Vinylite-Resin Helps NYLON Appearance	130		S		
				E		FLOOR Maintenance Begins With Cleaning	130	C	S	W	M
Y						Jap SPINNING Frames Not Superior to U. S.	144	C	S		
Y	W	K	F	E	M	COMPETITION Met By Improvements	148	C	S	W	M
Y						Tongue and Groove Compresses SLIVER	148	C	S		
	W		F		M	DESIGNER Can Aid Mill to Hold Production	150			W	
Y						Western WOOL-SCOURING Plant Has Problems	152			W	
Y						Small BLENDING PLANT Might Be Successful	154	C	S	W	M
Y						Blending Worsted COLORS Needs Accuracy	156			W	
	W					Draper Loom Not for "Tumble-Twist" RUG	156	C			
			F			Locust-Bean Gum Used in FINISHING	159	C	S		

TEXTILE WORLD

APRIL 1947 — VOLUME 97 NUMBER 4

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DEPARTMENTS

Editorial 4
Free for the Asking.....261
Kinks and ShortCuts.....132
News About Men.....304
New Dyes and Chemicals.....130
News About Mills.....294
News About Suppliers.....286
News of the Month.....280
Pete and Bill.....141
Questions and Answers.....152
Reviews of Books 142
Round Table 144
Textile Calendar 280
Textile Equipment News.....125

THE *Long-Range* VIEW

This Is the Time

This is the time we have been expecting—the time when textile activity begins to return to normal, but a new normal that should be at a higher level than prewar. The signs are unmistakable in heavy woolens, in hosiery, and in some heavy cotton goods.

The fact that textile mills have long been expecting this period is a healthy sign. To prepare for it, many mills have accomplished much to reduce costs, to increase productivity per man-hour; and a little to improve quality and reduce waste. More and still more must be done along all these lines. The mill that feels it has "arrived" has already started to slip.

In this approaching new era for textiles, there are some phases which we cannot dispose of even if we should want to; for example, higher wages, the ever-greater importance of synthetics, more social benefits for employees, increased influence of world conditions. There are some phases which we might dispose of but which we should strive to keep; for example, greater standardization of lines, more control by mills of the products manufactured, continued spending of larger proportions of profits for plant and equipment improvements, more reliance on research and scientific approach to mill problems.

There are some phases of today's operation which we should not strive to keep, notably the operation of obsolescent equipment. Some few mills have already been faced with reducing production, and that is not surprising in view of the types and prices of some textiles which have been produced. Some equipment still operating today should have been replaced years ago (or relegated to an emergency stand-by status). There is no sound reason why there should be a cry to keep all of our installed equipment producing when some of it is clearly outmoded. Coarse-gage full-fashioned machines are a good example. An intelligent mill manager will realize that his old equipment must continually be replaced.

Of course, there is much more to keeping a mill up to date than just replacing equipment. Effective operation today requires much equipment that was relatively unknown some years back. Great progress is being made in the field of materials handling; but, in the future, such things as automatic dispatching and more nearly complete mechanical handling will be as commonplace as ordinary hoists are today.

Formerly, not too much thought had to be given to facilities for employees, and working conditions in textile mills had a bad name. Today, many plants have conditions as comfortable as those of an air-conditioned theater; toilets are clean, light, even showy; cafeterias serve food that is far better and cheaper than that found in most restaurants; lighting is superior to that in employees' homes. True, not all textile mills have working conditions as ideal as those stated—but the proportion that does is ever increasing.

Formerly, textile-mill employees were not even sure of their hourly wages from day to day. Today they know they cannot be discharged without cause; they will receive unemployment compensation if they are laid off and cannot find another job (or if their work-week drops too low); they are building up old-age benefits; they get vacations with pay and probably are insured, partially at least, by funds from the company; they generally enjoy recreational or other benefits at the expense of the company and, in some cases, share in profits.

Operating a mill today is more complex than it was prewar. Emphasis is shifting somewhat from astute buying of variable raw materials and from opportune selling. The shift is to more intelligent management of both personnel and equipment. No mill management today could expect to keep up profits by cutting wages. If profits are to be kept up, it should be through higher productivity, technological improvement, or some other evidence of superior management—not through wage cutting, reducing quality, or government subsidy. We must judge our new peacetime operation by new standards. If the level is to be higher than prewar, our managerial viewpoint must also be.

C. H. Bendigo

Production Increases... Production Costs Go Down with *Tannate-Rockwood* Drives

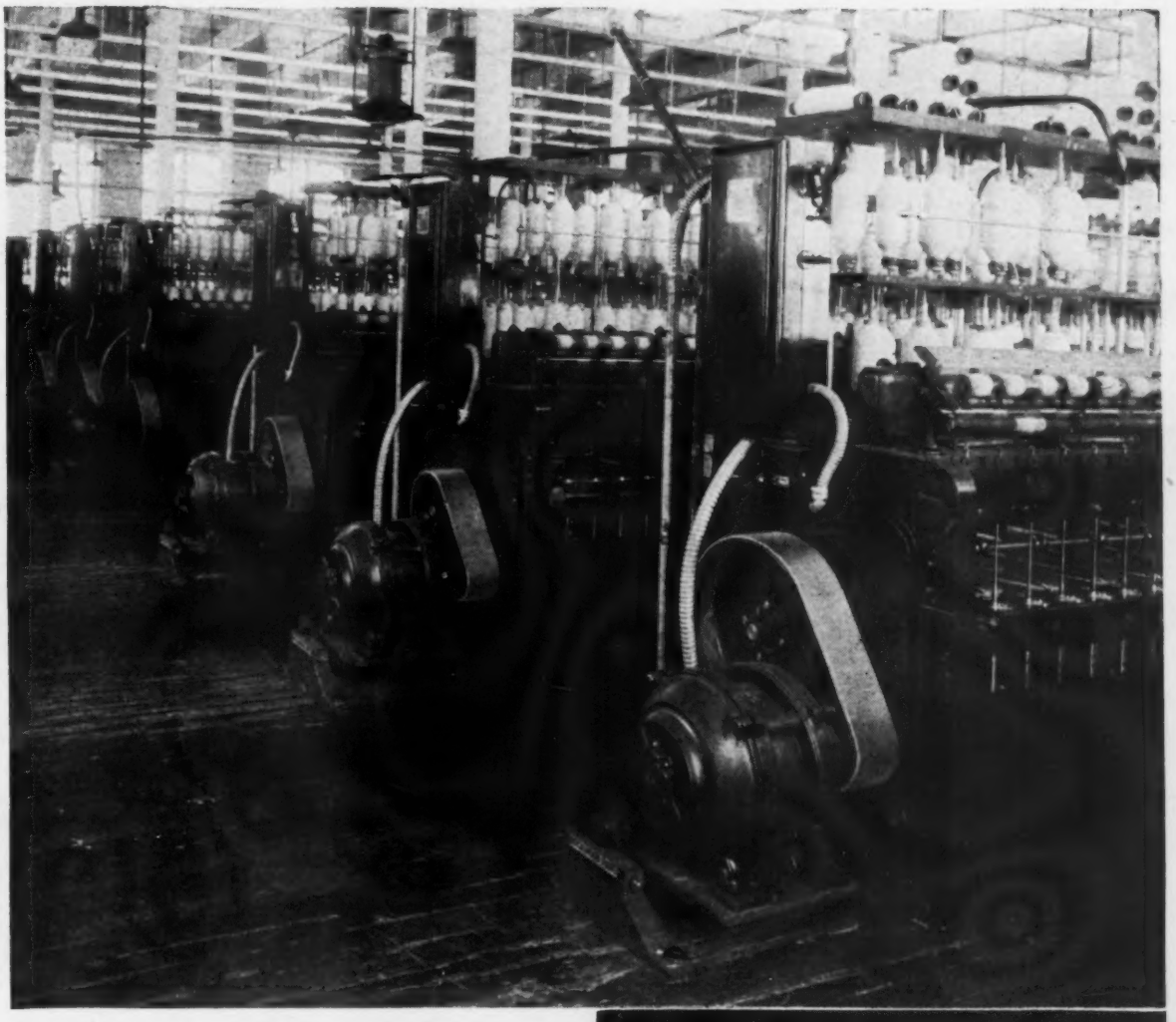
- **Maximum flow of power**
- **Greater hourly production every hour of the day**
- **Maximum machine speeds even under varying load conditions.**
- **Great strength and firm pulley grip.**

The efficiency of your drives depends greatly on the power used to operate them. With the Tannate-Rockwood short center drive you get *more delivered power* from motor to machine. The pivoted Rockwood base automatically adjusts belt tension. Speeds are kept constant—assuring uniform flow of power, less wear on the belt and bearings.

The Tannate flat leather belt has a high coefficient of friction and great pliability. Tannate withstands high temperatures, water, machine oil and many chemicals.

Tannate-Rockwood drives are easy to install, compact and require little attention. They work well driving vertically, horizontally or at an angle.

Rhoads' 245 years in the leather business have helped them make a "better belt" for power transmission.



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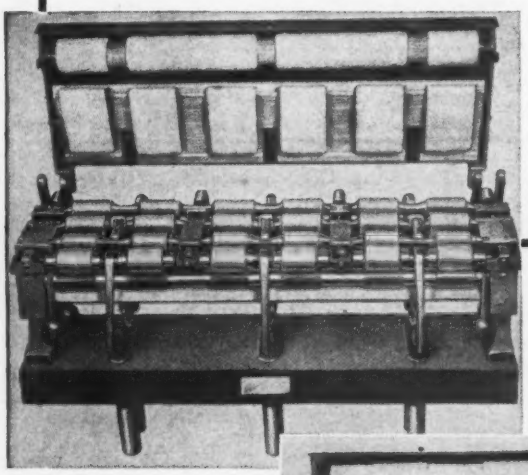
NEW SACO-LOWELL CONTROLLED DRAFTING ASSEMBLIES FOR ROVING AND SPINNING

These Saco-Lowell drafting assemblies for Roving and Spinning offer mills a range of equipment which can process with equal efficiency Cotton, Rayon, Wool or Blends. Their flexibility, with regard to both character and staple length of stock which can be processed, is such, that yarns most in demand to meet fashion's latest requirements can be furnished without necessitating any extensive mechanical changes or added capital investment.

SACO-LOWELL SHOPS · BOSTON

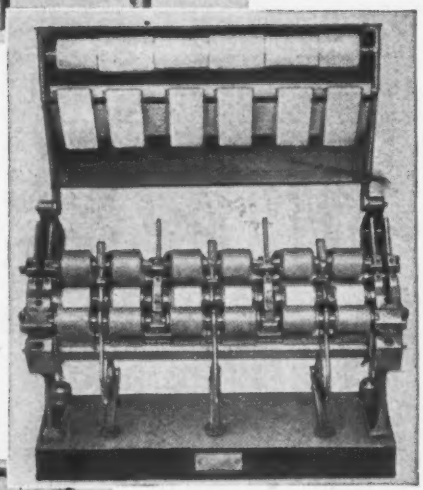
SHOPS AT BIDDEFORD, MAINE

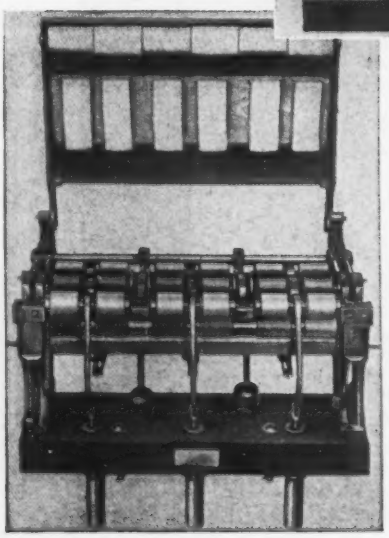
BRANCHES: Charlotte · Greenville · Atlanta



ROVING

The Saco-Lowell J-3 Controlled Draft Unit is the standard roving drafting assembly used to process cotton. The practical drafts range from 10 to 24 on carded stock and up to 30 on combed stock. It can also be used for the synthetic fibres up to 1½".



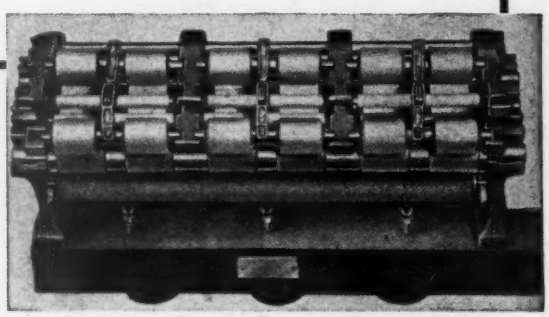


ROVING

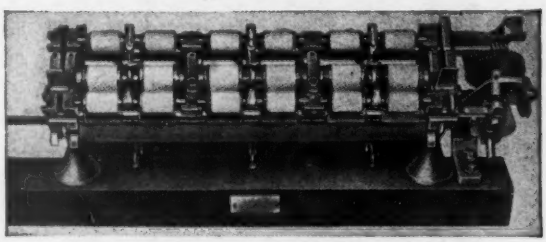
The FS-2 Controlled Draft Roving Assembly is equally efficient on stocks consisting of cotton, synthetics, wool, or mixes of these fibres. This assembly has the ability not only to handle a very wide range of staple lengths, from short cotton to 2½" synthetic fibres, but also blends of widely variable staple lengths. Depending upon the material, drafts of up to 40 may be used.

ROVING

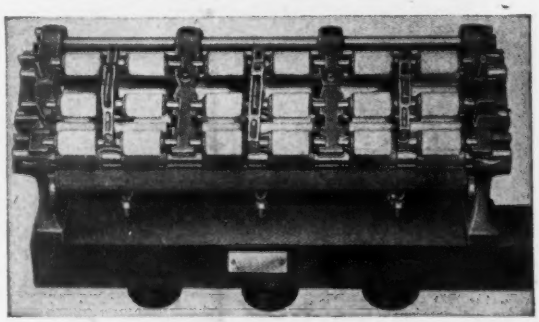
The FS-1 Controlled Draft Roving Assembly, sometimes called the 3 over 4, is especially designed for synthetics and blends containing fibres up to 3" long. It can be operated with drafts as high as 20 to 24. It can also be used for processing short wool tops.



SPINNING. The Z-2 Spinning System is used for the processing of long-staple synthetics and natural fibres such as wool. While it will process cotton satisfactorily for medium and coarse counts, it is especially designed for synthetics and blends containing fibres up to 3".



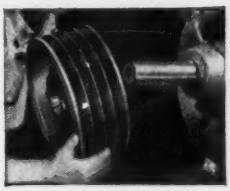
SPINNING. The Shaw Controlled Draft Spinning System is especially adapted for the production of fine combed yarns. Drafts range from 25 to 40. This system employs a new principle which will have far-reaching effects on the technology of cotton spinning.



SPINNING. This Better Draft Spinning has been standard for the production of cotton yarns since 1926. It is equally efficient on carded or combed stock. The drafts can go as high as 16 to 18 with carded stock, 18 to 22 with combed stock.

Save time . . . prevent damage to motor and shaft . . . with TEXROPE

"MAGIC-GRIP" SHEAVES



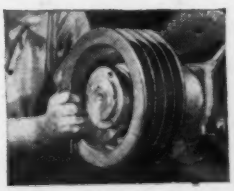
QUICKLY ALIGNED

Because it slides freely on the shaft, it's easy to line up the sheave accurately — for good alignment, smooth operating, longer belt life. It pays to standardize on "Magic-Grip" sheaves.

See Sweet's Catalog

SLIPS ON EASILY

Comes completely assembled. Tapered split bushing provides clearance for even over-size shafts — it's compressed and locked to the shaft with an all-around clamp grip by tightening three cap screws. Can be removed as easily as it goes on.



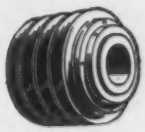
HERE'S A SHEAVE that goes on *fast*. Less labor cost — less downtime. But that's only part of the saving. There's no forcing or hammering to damage motor bearings — no set screws to mar the shaft. Locks on with a powerful clamp grip that prevents backlash or wobble. And . . . it costs no more than a standard heavy duty sheave of comparable materials and precision workmanship.

Texrope "Magic-Grip" sheaves are made in diameters from 5.4 to 48 inches, two to 12 grooves. They're engineered by Allis-Chalmers, originators of the multiple V-belt drive. For specifications, prices, call your nearest A-C dealer or office. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN. A 2221

TEXROPE .. Greatest Name in V-Belt Drives

"Super 7" V-BELTS
Five Types — Sizes to suit every power transmission job.

Texsteel, Texdrive, "Magic-Grip"
— sheaves in a full range of sizes, grooves.



"Vari-Pitch" SHEAVES
Exact variations in speed, stationery or motion control.

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Speed variations up to 375% at the turn of a crank.

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Finest V-Belt engineering talent in the world—at your call.

TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

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"JOB PROVED" PETROLEUM PRODUCTS FOR INDUSTRY

SUN INDUSTRIAL OILS

SOLNUS OILS — Well-refined straight mineral oils. Stand up under hard use for long periods of time. Recommended for use in the machine tool industry, in air compressors, certain types of Diesels, etc.

SUNVIS OILS — Are in the same category as Solnus Oils with the difference that, in addition, they meet practically all paraffinic and high V.I. oil specifications.

OCNUS OILS — Low carbon-content oils, containing an additive which minimizes oxidation and gives detergency. Ideal lubricants for internal combustion engines subjected to continuous heavy loads under the most adverse operating conditions.

DYNAVIS OILS — Low pour point inhibited oils which help prevent formation of harmful corrosive and sludge-forming acids. Well-suited for engines fitted with alloy bearings and operated at high temperatures.

SUNTAC OILS — 100% petroleum products which have been treated to increase their adhesiveness. Recommended for general lubrication in all industries where sudden shocks and reversal of loads take place. These oils cling to the parts to be lubricated.

CIRCO OILS — Used for general lubrication of industrial machinery when straight mineral oils are required.

SUNISO REFRIGERATION OILS — Have extremely low pour points and long life stability characteristics. Initially neutral and resistant to formation of detrimental acids under service conditions. The most outstanding oils in the refrigerating and air-conditioning fields.

STEAM CYLINDER OILS — High flash and fire point lubricants for either saturated or superheated steam conditions and for worm gear speed reduction units.

SUN CAR JOURNAL OILS — Dark oils meeting A.A.R. Specifications. For use on railroad cars and waste-packed bearings of railroad equipment.

SUN DELAWARE OILS — Dark oils for general lubrication on older type industrial machinery.

SUNOCO WAY LUBRICANT — Has good metal-wetting and adhesive properties, ample viscosity and E.P. qualities. For use on tableways, as it eliminates chatter and scoring . . . resists corrosion.

SUN MARINE ENGINE OILS — Compounded with special emulsifying agents in order to provide adhesion to and lubrication of working parts in the presence of water. For the lubrication of bearings, eccentrics, cross-heads and various other parts of steam engines.

ROCK DRILL OIL — Heavy-duty adhesive type oil. For use in jack-hammers, stopers and drifters on heavy-duty mining operations.

SUNVIS 900 SERIES TURBINE OILS — High V.I., predominantly paraffinic oils, of uniform 0°F. pour points, containing additives to give high oxidation stability and corrosion resistance under practical operating conditions. Modern oils for turbine and hydraulic systems.

SUN INDUSTRIA-L GREASES

SUN CUP GREASES — Water resistant. For grease cup and grease gun application when the service is not severe.

SUN GUN GREASES — Smooth greases made with medium viscosity oil. Stable under pressure in power guns or booster guns.

ADHESIVE PRESSURE GREASES — Won't drip or splash and are excellent lubricants for open gear applications.

SUN DARK PRESSURE-SYSTEM GREASES — For power-driven central grease lubricating systems in heavy industries. Can also be used as a "medium cup grease."

SUN MINE CAR GREASES — Available in several grades. Suitable for both anti-friction bearings and plain bearing cavity-type wheels.

SUN ROLLER BEARING GREASES — For use on electric motors and generators and other high-temperature machinery equipped with ball or roller bearings.

SUN GEAR COMPOUNDS — Black adhesive open gear compounds and wire cable greases. Recommended for open gears on metalworking power presses, mining machinery, old reduction mills, crushers, pump gears, etc.

SUN MINING MACHINE LUBRICANT — Semi-fluid. For use where a light but adhesive type grease is required. Free from separation or decomposition.

SUNOCO TRACTOR ROLLER COMPOUND — For miscellaneous parts of caterpillar or crawler-type tracks. Provides good lubrication with exceptional sealing qualities.

SUN METALWORKING OILS

SUNICUT — Straight or non-emulsifiable transparent cutting oils. Recommended for automatic screw machines and for heavy-duty machining operations.

SUN INDUSTRIAL

JOB PROVED

SUNOCO EMULSIFYING CUTTING OIL—A self-emulsifying oil which produces a stable white emulsion when mixed with water. Sunoco is an efficient and economical cooling and lubricating medium for turning, milling, drilling, and other metalworking operations on both ferrous and non-ferrous metals. It is also an excellent grinding coolant.

SUN QUENCHING OILS—Specially refined oils designed to develop maximum physical properties in a wide variety of steels.

SUN TEMPERING OILS—Specially refined oils for tempering steel up to 550°F. Due to their low carbon content and stability under heat, these oils have an unusually long service life.

SUN ROLLING OILS—Straight and emulsifying oils which will permit maximum production in rolling steel, aluminum and brass.

SUN ANTI-RUST COMPOUNDS—Petroleum base oils with chemical additives designed to prevent the rusting and corrosion of steel.

SUN PROCESSING OILS

SUNOTEX TEXTILE OILS—Designed to impart certain additional properties to various forms of fibers during their processing from the fiber state into a manufactured product. All Sunotex textile oils are emulsifiable in water.

SUN COTTON CONDITIONING OILS—Pale mineral oils which condition the cotton. They prevent waste by cutting down excessive amounts of "fly" or fine air-borne particles of lint.

SUN ASBESTOS FIBER CONDITIONING OIL—Used for spraying on the asbestos during processing. Fibers are not so readily damaged or broken down into harmful dust when this product is used.

SUN CORDAGE OILS—Are adaptable in various formulae used by cordage manufacturers. They are selected products which are highly compatible with additives.

CIRCOSOL—2XH (Rubber Processing)—An elasticator and processing aid for GR-S particularly.

CIRCO LIGHT PROCESS OIL (Rubber Processing)—A processing aid and excellent softener for natural rubber, natural rubber reclaims, and neoprene synthetic rubber particularly. Used for GR-S to some extent.

SUNDEX 53 (Rubber Processing)—An inexpensive product suitable for processing GR-S and blends of GR-S and natural rubber. An established outstanding processing aid for footwear rubber stocks.

CIRCOMAR-5AA (Rubber Processing)—A black colored product used in reclaiming natural rubber scrap. Used also as substitute for asphalt fluxes in processing natural and GR-S rubber. Free-flowing at room temperature.

SUN LEATHER OILS—Mineral base leather oils. Used for obtaining the desired tensile strength, proper temper and a controlled moisture content. They maintain a light even color . . . mix well . . . distribute evenly.

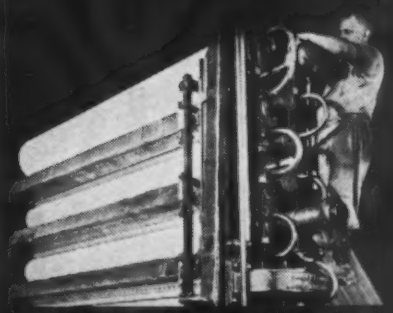
SUN MISCELLANEOUS INDUSTRIAL PRODUCTS

SUN SPIRITS—For the thinning of paints, varnishes, and enamels. Also for metal cleaning. This product is a pure water-white petroleum solvent and is free of corrosive sulphur.

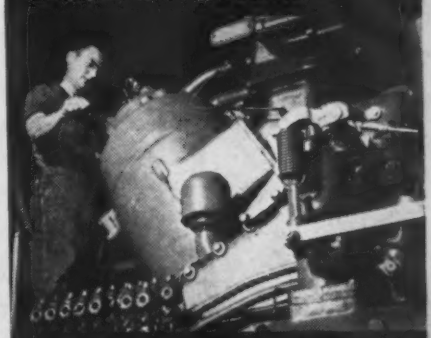
SUN WAXES—Used in packaging, sealing, coating, waterproofing and for numerous manufacturing and chemical processes.

RUBBER MANUFACTURER saved $3,000 a year with a Sun Processing Aid.

ALUMINUM PARTS MANUFACTURER increased output 43% with Sun Cutting Oil.



PAPER MILL slashed annual lubrication bill $2,874 by using a Sun Grease.



POWER PLANT found Sun Diesel Lubricant lasted 50% longer.

A TEXTILE MILL increased slashing speed 60% by adopting a Sun Processing Oil.

PRODUCTS

SUNOCO

ANNOUN

NEW YORK

will be the scene of
the World's Largest

INTERNATIONAL EXPOSITION

of

TEXTILE MACHINERY
Equipment & Supplies

1948 **APRIL**
26-27-28-29-30

C E M E N T

THE PLACE

The Exposition will be held in the great Kingsbridge Armory — 185,000 square feet — all on one floor — no columns — largest open floor in the country.

Only 22 minutes from Times Square by subway.

PROMOTION

Aggressive International Advertising & Publicity campaign will be conducted by the Exposition Management in Textile trade magazines and newspapers in every country in the world.

ACCOMODATIONS

Ample parking facilities — Fine Restaurants close by—Hotel rooms will be made available for the thousands of visitors from all over the world, through the cooperation of the New York Hotel Association and New York's Convention Bureau.

SALES LEADS

To assure maximum business for participating manufacturers, strict policy of registration will be observed, and lists of registrants will be prepared for exclusive use of exhibitors. The general public and "curiosity" seekers will be excluded from admission.

The timing for an international exposition of textile equipment is perfect—the place ideal—78 leading manufacturers have already indicated space requirements. You are invited to exhibit the products you want to sell to the world's textile mills —price per square foot is $2.50—no preferred locations—"first come first served."

WHETHER YOU PLAN TO EXHIBIT YOUR PRODUCTS OR TO VISIT THE SHOW

GET THE DETAILS

by writing

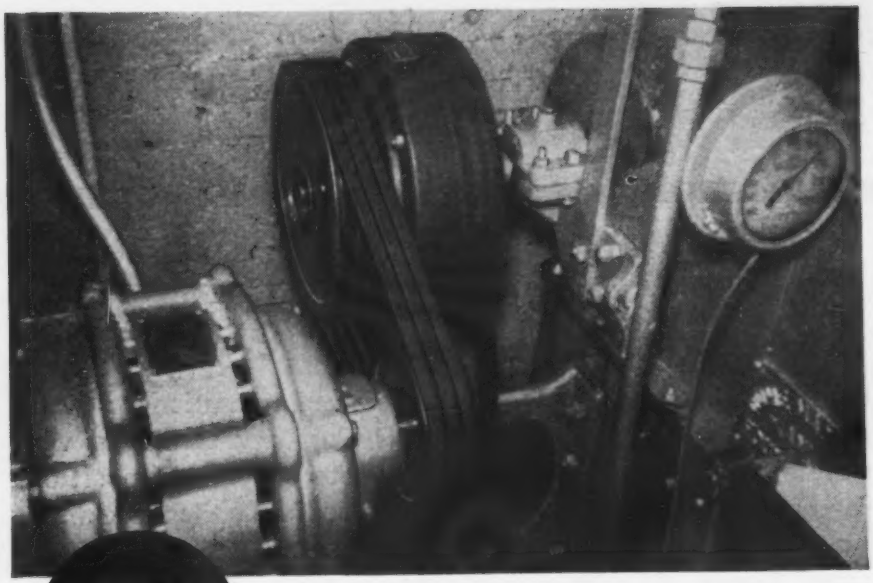
INTERNATIONAL EXPOSITION OF TEXTILE MACHINERY, EQUIPMENT & SUPPLIES

Under Management of EXHIBITIONS OF FASHIONS, INC.

BANK REF.: MFRS. TRUST CO., 530 7th Ave., N. Y., N. Y.

EXECUTIVE OFFICE

36 WEST 47TH STREET **NEW YORK 19, N. Y.**



Machine down-time for repairs was eliminated, maintenance cut 90%—on this machine operated at 22 rpm. by an American Reduction Drive. Installation took just 3 hours, floor space was saved and shock loads eliminated. Yes, it's *"Tailored Speed"* for Top Production!

NOW For Top Production It's *"Tailored Speed"* That Counts!

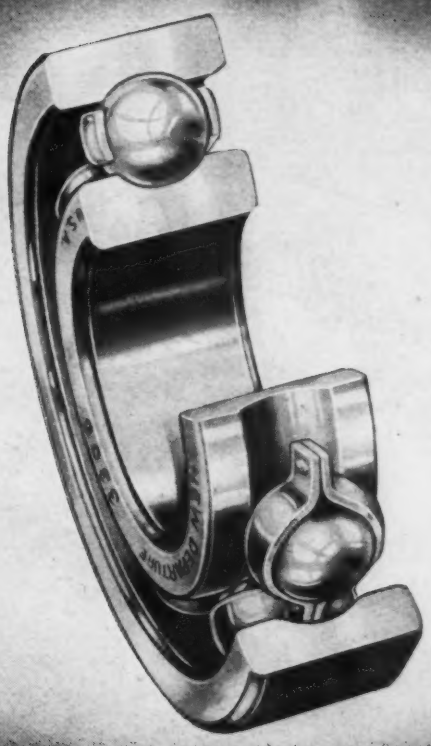
How "TAILORED SPEED" Helps You Boost Output On Slow-Speed Machines

Here's a *different* reduction drive principle that really opens the door to maximum machine output! Yes, it's the unique *"Tailored Speed"* principle of American Reduction Drives that does it. Here's why: American Reduction Drives give you *more* than just the right speed for your job. They safeguard motor and gears from costly damage because the primary belt drive absorbs shock loads. Further, American Reduction Drives are easy to install. And once on the job, speed changes are quickly, *easily* made—just by altering the ratio of the primary belt drive. The result is higher operating efficiency, less machine down-time—a drive virtually "tailor-made" for *your* job! Yes, *"Tailored Speed"* adds up to increased production—rock-bottom maintenance costs!

Take this sure step for top production, now. Give your slow-speed equipment all the advantages of American Reduction Drives. For complete engineering data, drop us a line requesting the American Reduction Drives Handbook.

- *"Tailored Speed"* Means Versatility Too!
- American Reduction Drives, with standard 13 to 1 ratio Reduction Units, deliver any required output speed from 11 to 154 rpm.
- Six standard sizes will handle jobs from 1/4 to 25 hp.

The American Pulley Company
4260 WISSAHICKON AVE., PHILADELPHIA 29, PA.



Hope of Industry.....

Looking into the future, industry sees the imperative need for cutting costs now.

But only by greater production and increased efficiency can costs and prices be brought low enough to achieve volume sales — and full employment.

With machines that can be run at *higher speeds*, more can be produced with the same amount of equipment — at a lower cost per piece.

And machines can be run at the highest speeds — for longer periods — with less trouble — if they are equipped with ball bearings.

New Departure ball bearings operate with less friction — and less heat — than any other type of bearing. They permit higher speeds. They are precision-made of tough, forged steel to give longer life.

Write for your copy of the booklet, "Why Anti-Friction Bearings."

nothing rolls like a ball

NEW DEPARTURE

forged steel

BALL BEARINGS

6 VITAL ADVANTAGES

- Higher speeds
- Greater accuracy
- Simplified design
- Every kind of load
- Lower maintenance costs
- Less friction — less wear

3463

NEW DEPARTURE • DIVISION OF GENERAL MOTORS—BRISTOL, CONN. • Branches in DETROIT • CHICAGO • Other principal cities.

YOU know that reducing the waste of costly stock to a minimum is an important factor in your mill . . . the smaller the percentage of waste, the greater your production—and profit!

Precision-made Tuffer Card Clothing reduces waste at the beginning . . . reduces raw stock losses by improving the quality of your carding . . . increases the yield of your cards. The benefits of these primary advantages are felt throughout your entire mill. A proper start means better yarns at lower production costs.

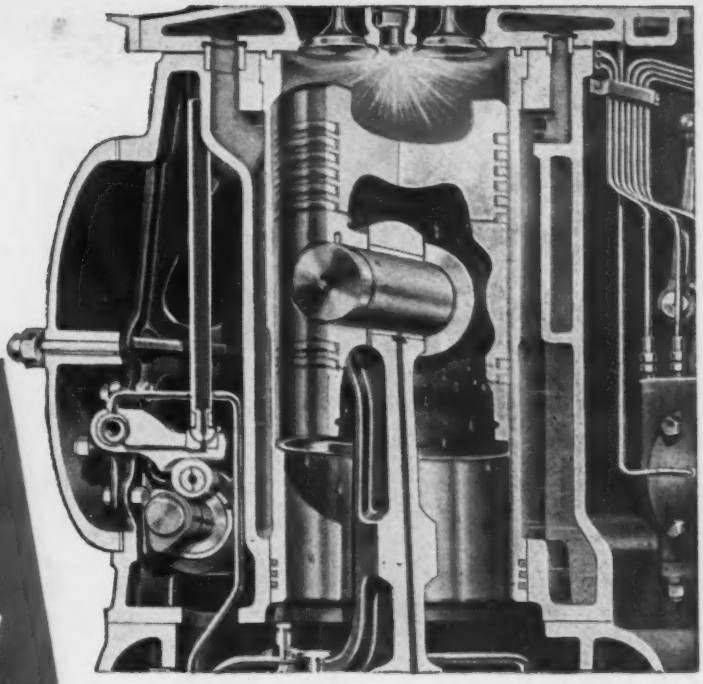
A Howard Bros. representative will gladly examine your card clothing—and make workable recommendations that will cut down excessive stock losses.

HOWARD BROS. MFG. CO.
WORCESTER 8, MASSACHUSETTS

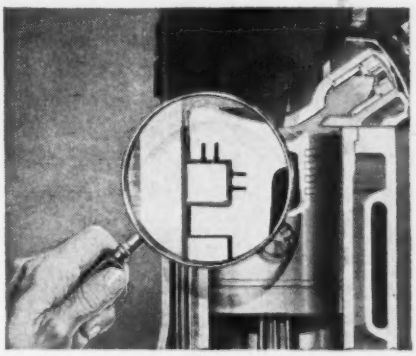
Southern Plants: Atlanta, Ga., Gastonia, N. C.
Branch Offices: Philadelphia, Pa., Blanco, Tex.
Direct Representation in Canada

A-8

TUFFER CARD CLOTHING — *IMPROVES PRODUCTION ALL ALONG THE LINE*



YOUR Socony-Vacuum Representative is a Sales Engineer, trained through years of experience in the lubrication of industrial plants of all kinds. He thinks in terms of the inside of your machines. He knows bearings, cylinders and gears . . . the operating difficulties that must be met and overcome. Called into your plant to help you obtain maximum machine efficiency, he works with your own engineers, a friendly expert adviser . . . on your staff but not on your payroll.

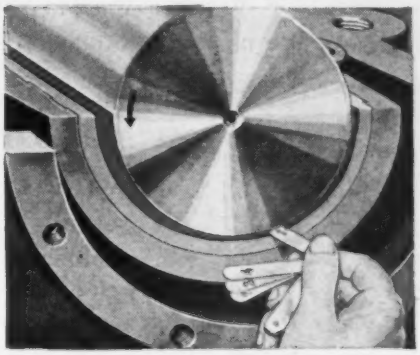


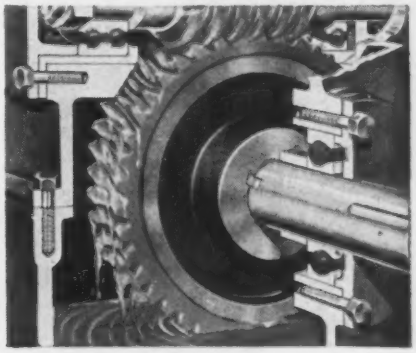
Studies Operating Problems

Every unit in your plant has its own operating characteristics. For instance, the loads on certain gears, the temperatures of bearings. Your Socony-Vacuum Engineer studies all factors.

Recommends Correct Lubricants

With all the facts about your machines, your Socony-Vacuum Engineer is able to recommend the right Gargoyle oil or grease and the best application technique for every problem.





Sets up a Lubrication Program

Your Socony-Vacuum Engineer provides complete lubrication schedules. He helps with storage problems and lubrication training. Finally, he prepares progress reports on the benefits obtained.

The Inside Track to Profits . . .

Socony-Vacuum Correct Lubrication

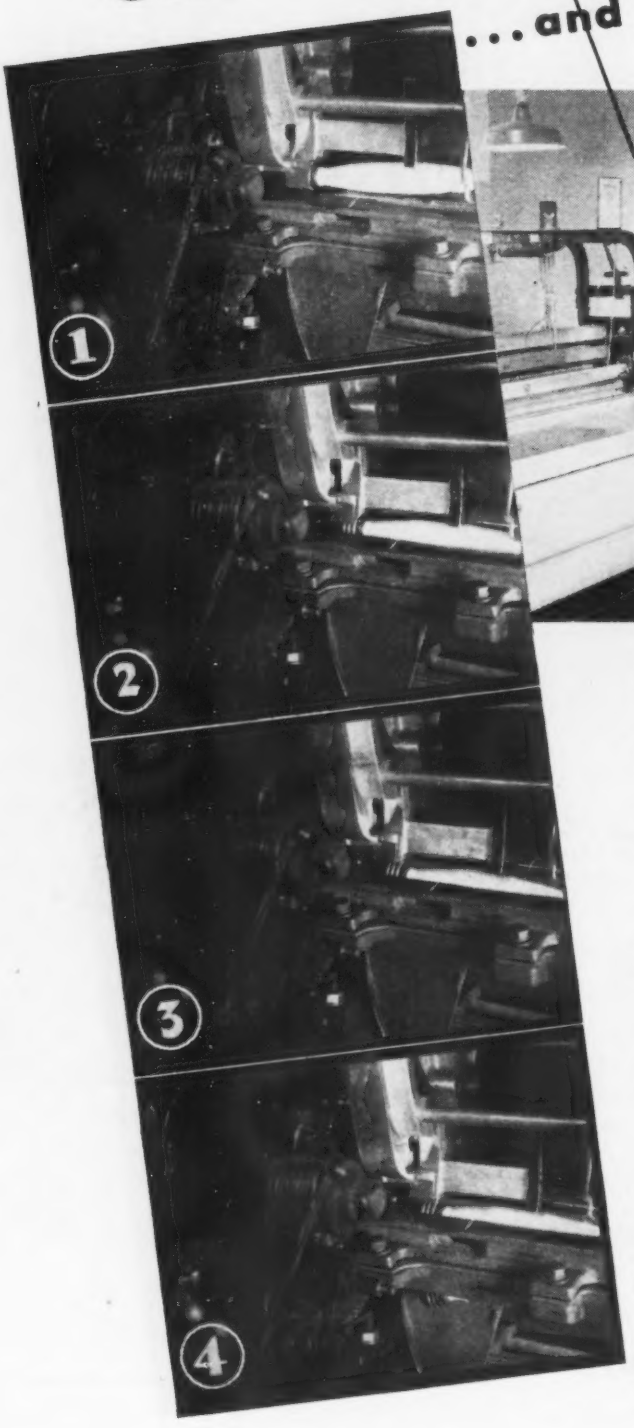
SOCONY-VACUUM

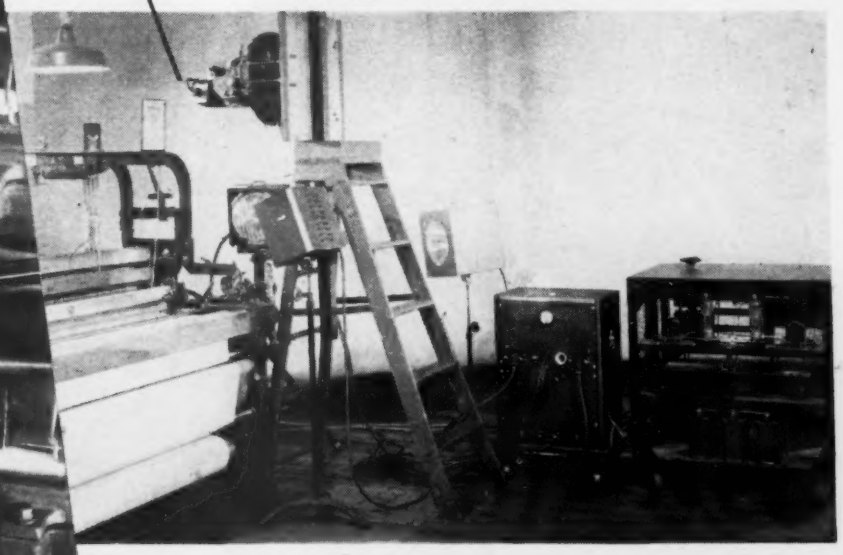
GARGOYLE Lubricants

SOCONY-VACUUM OIL CO., INC., and Affiliates: Magnolia Petroleum Co., General Petroleum Corp. • Tune in The Mobilgas Program, Monday Evenings, 9:30 E. S. T.—NBC

Look through the Eye of C&K's High-Speed Camera

...and see a Bobbin Transferred in 1/20th of a Second!





In far less time than it takes you to run your eye down this strip of four pictures, *here's what happens:*

The shuttle flashes into the box at a speed of 34 miles an hour.

It stays at rest there for exactly 1/5th of a second.

Within that time, a new full bobbin of correct filling yarn is *selected,* then *substituted* for the empty bobbin.

And this transfer must be completed in less than 1/20th of a second, while the bobbin is under the magazine . . . and *before* the new full bobbin starts on its return flight.

This precision of fractional-second timing must be maintained through millions upon millions of repetitions of this operation, so that there will be a minimum of loom-stops and lost production time.

That's exactly why Crompton & Knowles engineers never relax their study of the highly co-ordinated system of mechanisms which comprise a C&K Loom . . . to search out any possible ways to *increase* the already high degree of precision at which timing, positioning, and control are held, over long periods of time.

This study, like all continuing studies at C&K, is pursued for only one reason . . . so that *your* mill may be able to produce fabrics of higher quality, at higher speed, with less effort and fewer interruptions.

Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.
PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA.
Crompton & Knowles Jacquard & Supply Co.
Pawtucket, R. I.

between Today's Knowledge . .
and Tomorrow's Looms

SANDOZ PRESENTS *The color achievement of the month*

Garden-Fresh BY STETSON

The first soft-rich colors of the early flowers . . . so astonishing after the winter gray . . . suggested Stetson's choice for its up-from-the-face spring millinery.

Wherever color plays so great a part in inviting sales, the integrity of the dyes is vital. Sandoz is proud to be among the suppliers associated with the manufacture of such quality-famous products as Stetson Hats, providing dyes and chemicals that help Stetson keep ahead of the color parade.

Sandoz laboratories are continually working toward new standards in handling efficiency and also color fastness. Two outstanding dyestuffs broadly used are ALIZARINE LIGHT BLUE 4GL and XYLENE FAST ORANGE PO, both of which will stand the manufacturing process very well and meet the highest requirements for wear.

ALIZARINE LIGHT BLUE 4GL is one of the most popular Sandoz colors — used wherever a blue is required that will give light fastness and level dyeing in light shades. XYLENE FAST ORANGE PO is the only orange of equal light fastness that has very good fastness to water and is also level-dyeing.

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . be guided by the successful "color achievements" you have been seeing in these Sandoz advertisements. Sandoz application laboratories are located in New York, Boston, Philadelphia, Los Angeles, Charlotte, Toronto, where stocks in wide range are carried. Other branches are in Chicago, Paterson and Providence.

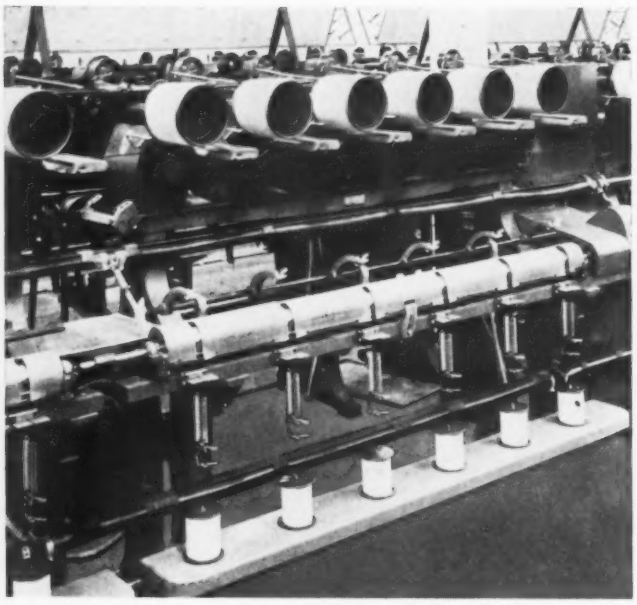
SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

SAND thinks ahead with textiles

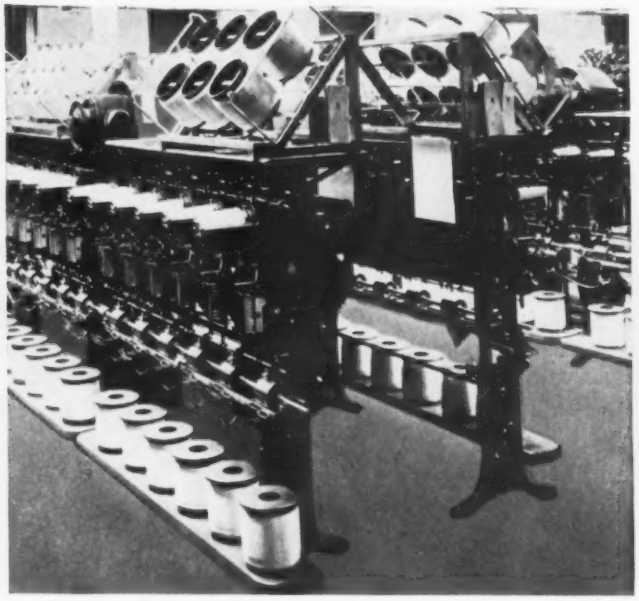
SANDOZ

IT'S THE DELICATE TOUCH

that produces better sizing and oiling of Nylon on the Universal System



Nylon wound on the No. 250 Sizing Machine is used (after conditioning) as a direct supply for the No. 50 Pineapple Coner — no re-draw needed.



Sensitive nylon yarn gets treated gently and with precision control on the Universal No. 250 Sizing Machine and No. 50 Pineapple Coner.

Pick-up of size and oil is easily regulated and is accomplished with a minimum amount of tension applied to the yarn. The arc of contact between yarn and roll is only 5°, and to reduce tension further, the roll is revolved in the direction of yarn travel. Special guides keep the yarn lightly but firmly against the roll and protect against vibration.

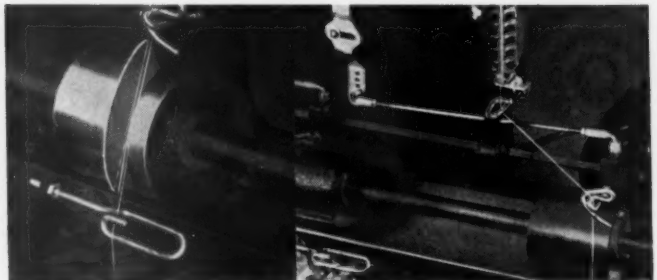
Constant roll speed produces a uniform thickness of size or oil on the roll. On the No. 250, yarn speed is practically uniform; and on the No. 50, the increasing yarn speed (as cone diameter increases) is compensated for by a guide which automatically lengthens the contact between yarn and roll. Troughs and rods are stainless steel.

When it is necessary to change the percentage of oil pick-up for different yarn conditions, this is easily done by a simple change in the roll speed while keeping the amount of yarn wrap at a minimum.

Universal Winding Company at Providence, Boston, Philadelphia, Utica, Charlotte, Atlanta, Chicago, Los Angeles, Montreal and Hamilton.

LEESONA

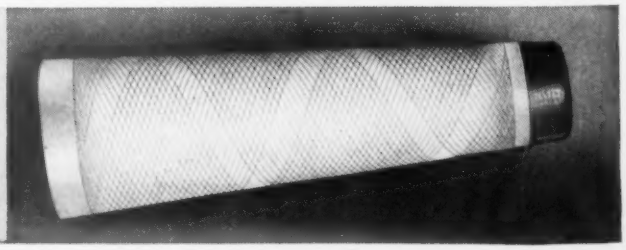
REG. U.S. PAT. OFF.

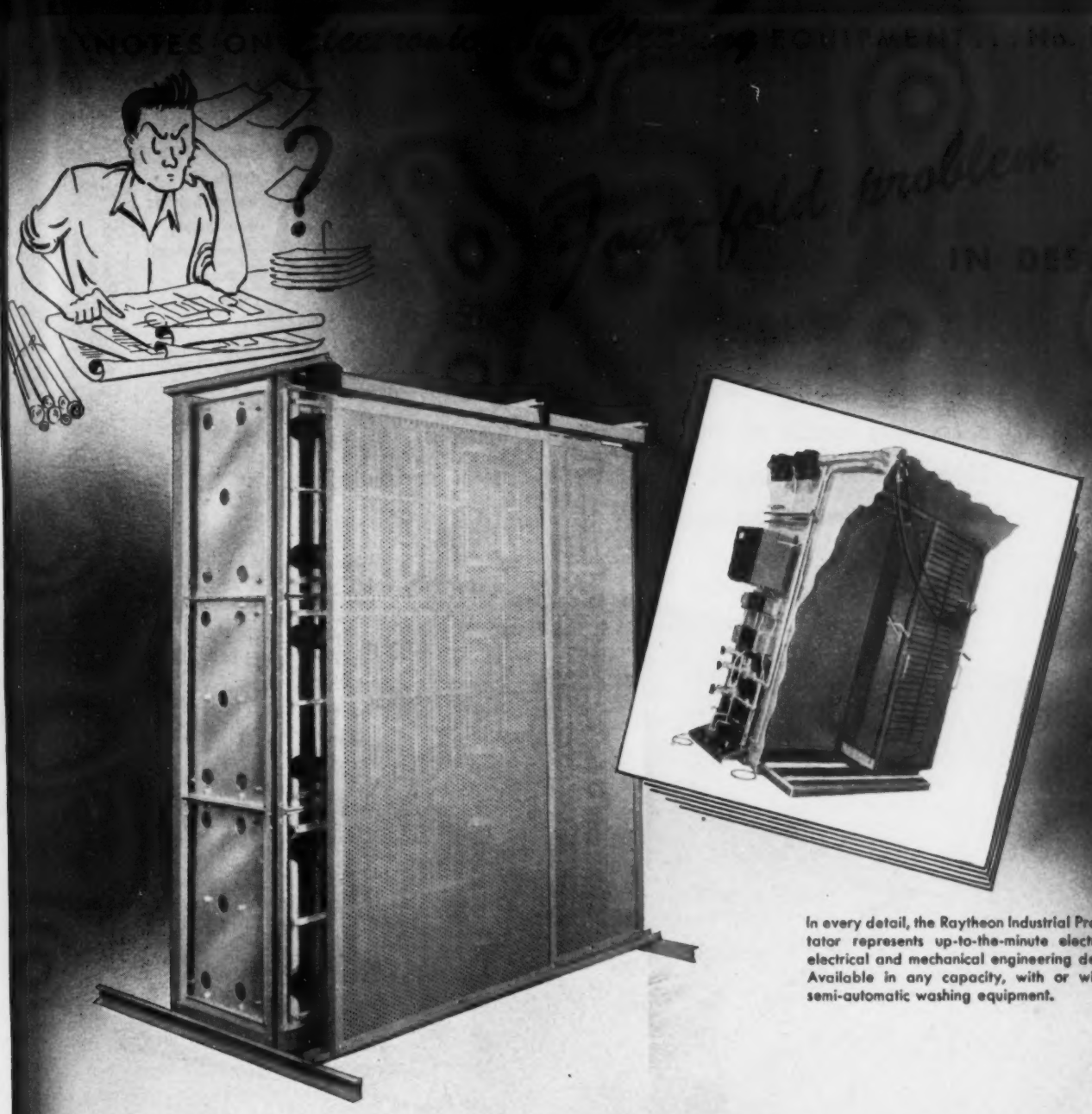


Proper arc of contact is obtained with a template indicating a 5° arc of yarn wrap. Guide position is changed to reduce or increase oil pick-up.

23-6-12

MORE THAN 90% OF ALL SYNTHETIC FILAMENT YARN ON CONES IS PRECISE-WOUND ON THE FLEXIBLE 50





In every detail, the Raytheon Industrial Precipitator represents up-to-the-minute electronic, electrical and mechanical engineering design. Available in any capacity, with or without semi-automatic washing equipment.

Next time you're asked to consider electronic air cleaning equipment, adopt the *how-would-I-build-it* approach. Scrutinize every design and construction detail, and see if you couldn't improve it. Consider, first, the broad requirements:

FRAMEWORK STRUCTURE: Should it provide separate support for each ionizer and each collector cell? Should it be designed to facilitate installation and maintenance?

IONIZERS: Should they be built to combine strength and rigidity with light weight? Should there be a separate ionizer for each collector cell? Will you avoid trouble by keeping ionizer wires *short?*

COLLECTOR CELLS: Should plates be rigidly secured for a sound electrical as well as mechanical bond? Do aluminum collector plates with cadmium plated steel end and supporting plates make the best combination? Can you avoid criss-cross bracing and consequent impeding of air flow?

POWER SUPPLY: Can two sizes be built to handle, individually or in multiple, installation of any capacity? Should transformer design be simple, high voltage taps avoided, provision made for quick, convenient adjustment of power?

Raytheon's answer to each of these questions is YES! For the reasons why, and other details, read succeeding advertisements. Better yet, write for Bulletin DL-P-503.

RAYTHEON

Excellence in Electronics

RAYTHEON MANUFACTURING COMPANY

Industrial Electronics Division, Waltham 54, Massachusetts

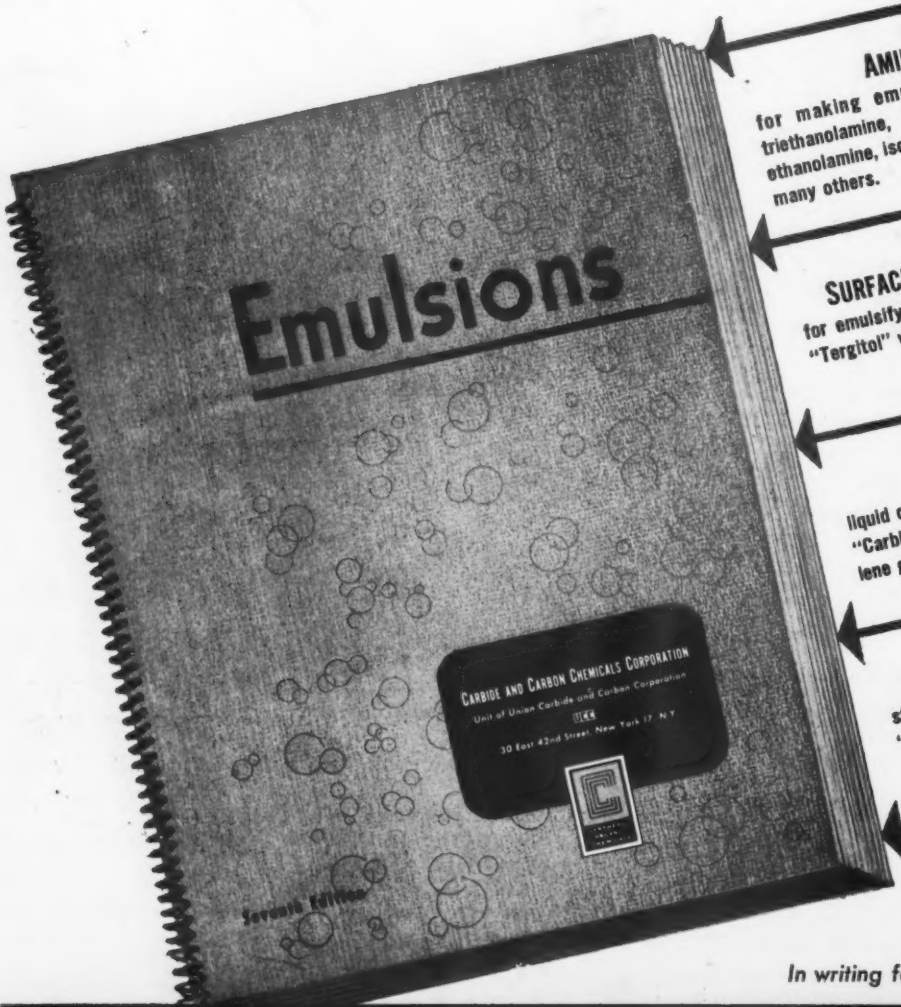
Builders of Raytherm Dielectric Heaters for every industrial application.
Synchronous Controls for Resistance Welding and other
Electronic Products for Industry

Sales Offices: Atlanta, Boston, Chicago, Cleveland, Louisville, New York

Emulsion Chemicals for

- agricultural sprays
- cosmetics
- floor waxes
- shoe polishes
- textile oils
- leather finishes
- water paints
- pharmaceuticals
- shampoos
- cutting oils

The seventh edition of our "Emulsions" book, containing suggested formulas and methods of emulsifying industrial oils, fats, waxes, and greases, has just been printed. This 72-page book includes complete information on the use of our chemical products in recently developed emulsion formulas:


Emulsions
Carbide and Carbon Chemicals Corporation
Unit of Union Carbide and Carbon Corporation
UCC
30 East 42nd Street, New York 17, N.Y.
Seventh Edition

AMINES
for making emulsifying agents: triethanolamine, morpholine, monoethanolamine, isopropanolamines, and many others.

SURFACE-ACTIVE AGENTS
for emulsifying chlorinated solvents: "Tergitol" wetting agents.

EMOLLIENTS
liquid or solid vehicles and ointments: "Carbitol", propylene glycol, polyethylene glycols, "Carbowax" compounds.

PROTECTIVE COLLOIDS
stabilizing and thickening agents: "Cellosize" Hydroxyethyl Cellulose WS.

SOLVENTS
all types for coupling agents and cleaning compounds.

In writing for your copy, please address Dept. T-1

CARBIDE AND CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation

UCC

30 East 42nd Street, New York 17, N. Y. Offices in Principal Cities

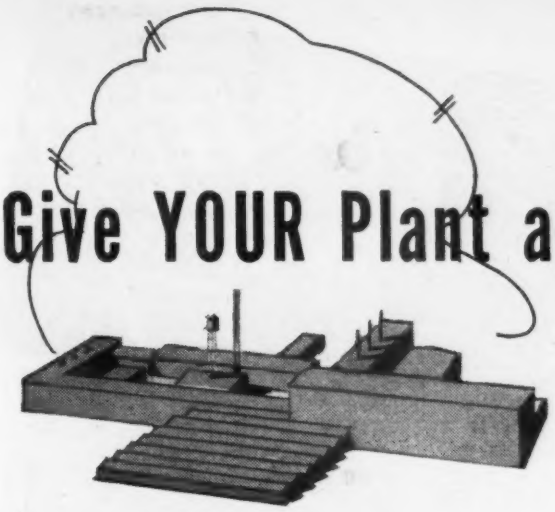
Distributed in Canada by Carbide and Carbon Chemicals, Limited, Toronto

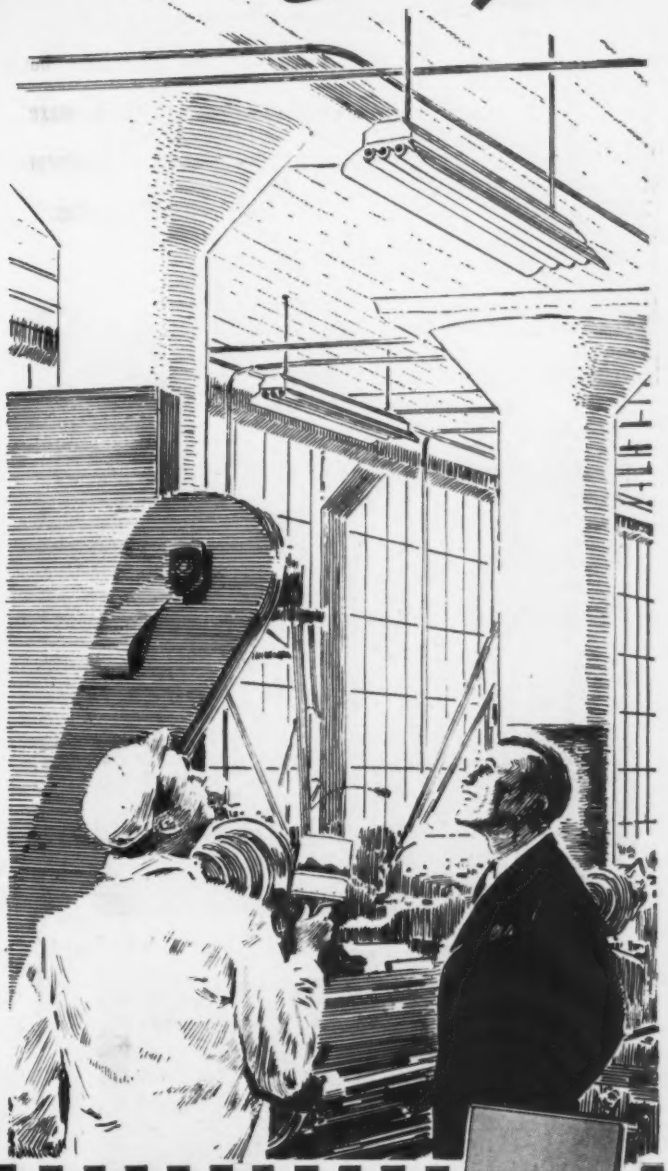
SYNTHETIC ORGANIC CHEMICALS

"Tergitol," "Carbitol," "Cellosize" and "Carbowax" are trade-marks of C. & C. C. C.

P-18634A

Give YOUR Plant an "Indoor Sky"





White Ceilings and Walls Mean Better Light and Better Sight

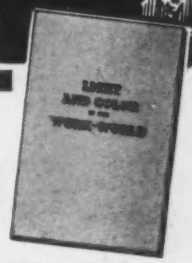
THE SKY, by reflecting and diffusing sunlight, makes lighting endurable out of doors. Without this reflection and diffusion the sun would be harsh and glaring, shadows dark and opaque, seeing both difficult and uncomfortable.

Indoors, proper painting of plant ceilings and walls transforms them into an "indoor sky" which reflects a maximum of both natural and artificial light, distributes it evenly over the working area and makes seeing easier by reducing glare and harsh shadows and minimizing contrasts in brightness.

Your local Lighting Engineer will tell you that good lighting and good seeing are best served in the plant proper when this "indoor sky" is painted WHITE, for white reflects far more light than paint of any other color.

But "any old white" won't do. If painting is to be a *sound investment* the white you buy must be easy to apply on large areas, give you good "yardage" without loss of hiding power and *remain* white for the longest possible time. That's why for years so many leading industrial plants have standardized on BARRELED SUNLIGHT.

For down-to-earth data on the relationship of light and paint to general plant efficiency, send for free copy of "Light and Color in the Work-World."



U. S. GUTTA PERCHA PAINT COMPANY
20-D Dudley Street, Providence 1, R. I.

I'd like to know more about the partnership of Light and Paint. Please send me your free 32-page booklet, "Light and Color in the Work-World."

COMPANY .....

STREET AND NUMBER .....

CITY ..... ZONE ..... STATE .....

MY NAME IS .....

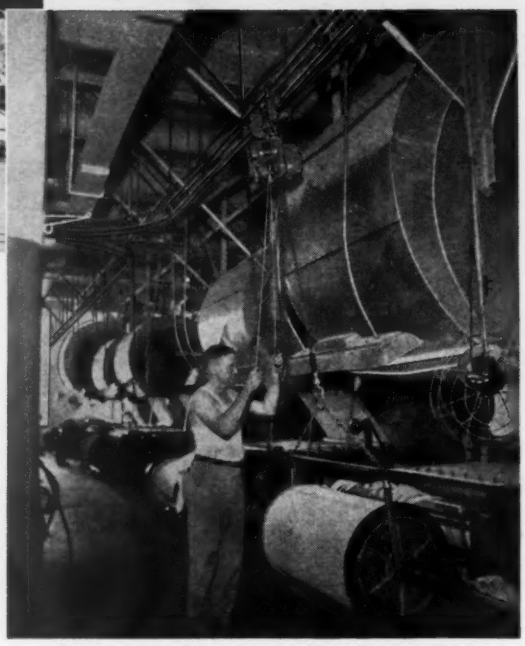
MY TITLE .....

© 1947 U. S. Gutta Percha Paint Company

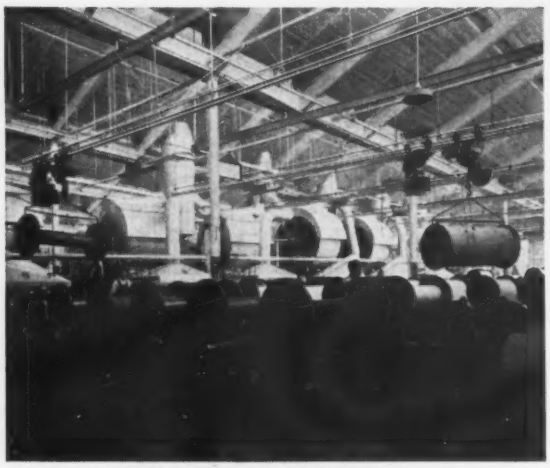
HANDLING BEAMS

The Easy Way!

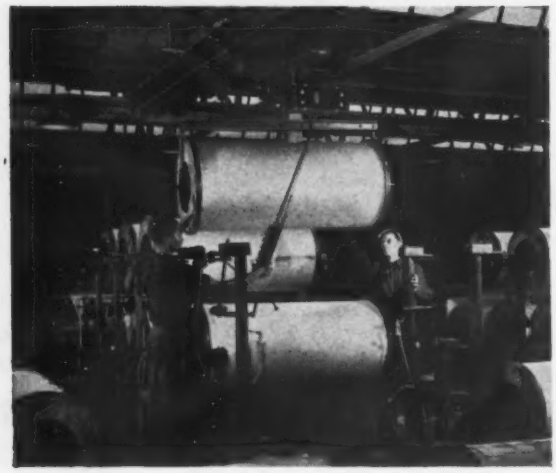
Free moving crane serves long weave room bays.



Electric hoist doffs beams quickly from slashers.



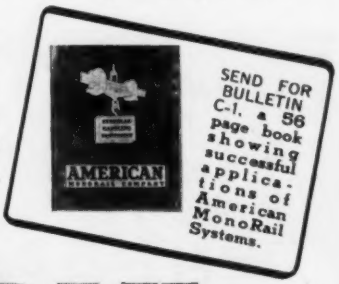
MonoTractor hoist unit creels slasher by fingertip control.



Power operated crane and carrier assures accurate spotting.

Beams and rolls move fast and safely when American MonoRail Overhead Systems serve your warpers, slashers and looms. These systems not only save time and money, they reduce fatigue and accidents, eliminate congestion and spoilage, and keep production on schedule without delay.

With thousands of installations to draw from, American MonoRail Engineers are well qualified to offer solutions involving overhead handling equipment. This service is offered without obligation.



THE AMERICAN MONORAIL COMPANY

13108 ATHENS AVENUE ● CLEVELAND 7, OHIO

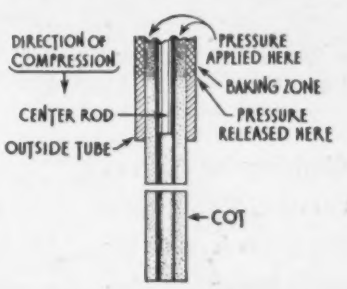
Armstrong's Cork Cots have extra friction

The extra "grip" of Armstrong's Cork Cots carries clearer waste well back onto the clearer boards. No eyebrowing occurs, and there's no danger of waste dropping off or being nipped into the work. Thus clearer picking is minimized and slubs are reduced. Moreover, these cots reduce clearer waste as much as fifty per cent.

The highly frictional surface of Armstrong's Cork Cots also gives you more uniform drafting and stronger yarn. Their resilience and uniformity result in fewer ends down per thousand spindle hours, so your operators do less piecing up. These cots recover quickly from most laps and hard ends. They won't flow under roll weighting. And because they are extruded, they have no hard or soft spots to grip the yarn unevenly.

Get samples, prices, and additional information on Armstrong's non-eyebrowing, clean-running Cork Cots from your Armstrong representative. Or write today to Armstrong Cork Co., Textile Products Dept., 8304 Arch St., Lancaster, Pa.

EXTRUSION PROCESS PRODUCES SEAMLESS CORK COTS



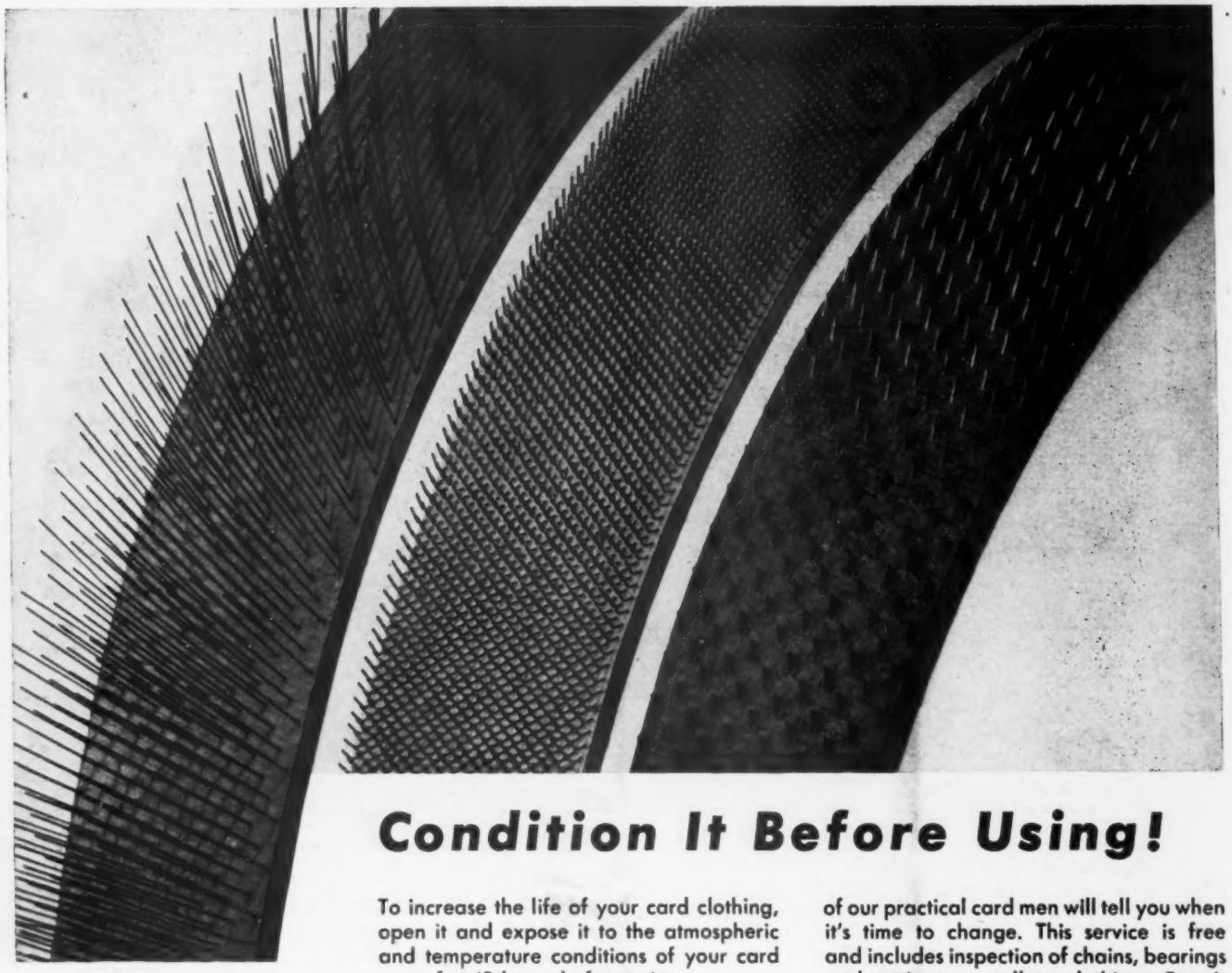
Armstrong's Cork Cots have no structural weakness to cause premature breakdown. Each cot is uniform in density from inside to outside, from end to end. Each compresses evenly, spins stronger yarn, lasts longer

Better running work . . . more poundage

ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS

HOW TO ADD LIFE TO YOUR CARD CLOTHING



Condition It Before Using!

To increase the life of your card clothing, open it and expose it to the atmospheric and temperature conditions of your card room for 48 hours before using.

If the card clothing is stored until actually needed it is generally cold when put on the cylinder. Cold clothing, applied to a warm cylinder or doffer, can cause a condensation of moisture which rusts the wire, even though the rust may be invisible.

The simple precaution of conditioning for 48 hours before using will prevent sweating, retard rust and greatly extend the efficient life of your clothing.

While good clothing will give yeoman service with reasonable care, it is poor economy to use any clothing after it shows signs of wear. Periodic inspections by one of our practical card men will tell you when it's time to change. This service is free and includes inspection of chains, bearings and settings as well as clothing. Repair programs are arranged so as to involve minimum expense and minimum loss of production time.

Ask our representative to call without obligating you in any way. His recommendations frequently increase production in addition to improving quality of work.

PRODUCTS and SERVICES

— Card Clothing for Cotton, Wool, Worsted, Silk, Rayon and Asbestos Cards, and for all types of Napping Machinery • Brusher Clothing and Card Clothing for special purposes • Lickerin Wire and Garnet Wire • Sole Distributors for Platt's Metallic Wire • Lickerin and Top Flats Reclothed.

ASHWORTH BROS., INC.

American Card Clothing Co. (Woolen Div.)

Fall River*†‡ Worcester*‡ Philadelphia*†‡
Atlanta†‡ Greenville†‡ Charlotte†‡
Dallas†‡ (Textile Supply Co.)

*Factory †Repair Shop ‡Distributing Point

Ashworth PIONEERS IN CARD CLOTHING

3 FACTORIES • • • 6 REPAIR SHOPS • • • 7 DISTRIBUTING POINTS

Woolens, Worsteds, Cottons and Synthetics...

Here's Help to make them Better!

No matter what fabric you're processing, you'll find that it will pay you to investigate the special Socony-Vacuum textile oils developed for your specialty.

For instance, if it's woolens, you can do a better job—and save money—with S/V Woolrex Oils to lubricate and condition your stock. Or, if it's worsteds, you'll get lofty white tops, better overall results, with S/V Worstex Oils.

If you're working with cottons . . . for general use or for mechanically pre-shrinking to definite standards, you should know all about S/V Textile Finishing Oils A and B for their excellent softening and re-wetting effects. Or, if you're treating for water-repellency, you can't beat the S/V Fabrisecs for maximum repellency with minimum amounts.

Vital for rayon processors, the complete Socony-Vacuum line includes special coning and soaking oils to lubricate and soften fibers.

Get full details now on the products that apply to your particular needs.

Process Products
SOCONY-VACUUM

Socony-Vacuum Process Products

SOCONY-VACUUM OIL CO., INC., 26 Broadway, New York 4, N. Y.
and Affiliates: Magnolia Petroleum Co., General Petroleum Corporation

TUNE IN THE MOBILGAS PROGRAM — MONDAY EVENINGS, 9:30 E.S.T. — NBC

Here is VARIETY

Don't you have an idea for a product that could be made from GEON polyvinyl materials?

Calendered sheets and films—injection and compression moldings—coating for fabrics, fibers and papers—extrusions—all the attractive and useful articles shown here were made from GEON polyvinyl materials. Such products may be brilliantly or delicately colored—clear or opaque—flexible or rigid.

Products made from GEON can be made to resist wear, aging, sunlight, heat, cold, foods, chemicals, oils, flame, dirt, mildew and many other normally destructive factors.

While we make no finished products from GEON, we would be glad to work with you on any special problems relating to the use of GEON. We'll be glad to work with you, too, on problems in connection with other raw materials manufactured by B. F. Goodrich Chemical Company. These products include HYCAR American rubber, KRISTON thermosetting resins and Good-Rite chemicals. For more information please write Department M-2, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

Shown in the illustration are the following products: fly swatter, raincoat, tablecloth, shower and window curtains, press polished sheet, blanket bag, floor tiles, garden hose, dog leashes, lady's belt, lady's handbag, clothesline and wire insulation.

B. F. Goodrich Chemical Company

A DIVISION OF THE B F GOODRICH COMPANY

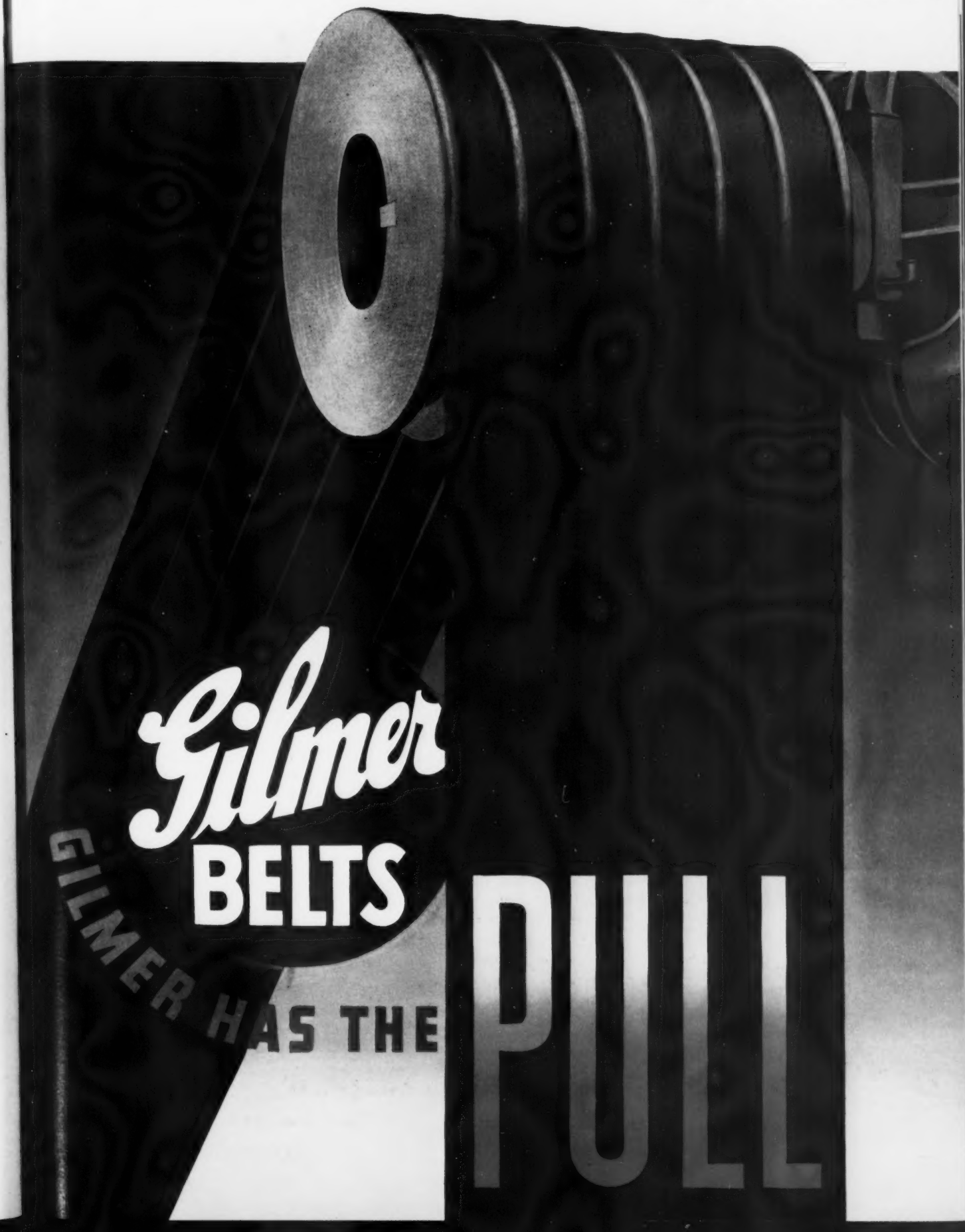
GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE chemicals

For Multiple V-Drives... and Multipotent POWER

PULLING POWER—with each belt bearing its full share of the load

GRIPPING POWER—with a non-slip grip that holds like a friction clutch

LASTING POWER—engineered construction adds extra months of service



Gilmer makes a COMPLETE LINE of

POWER TRANSMISSION BELTS

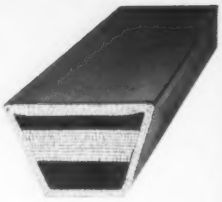
for every need . . .

GILMER BELTS ARE DESIGNED AND BUILT BY BELT ENGINEERS. THERE ARE TYPES AND SIZES TO MEET EVERY SERVICE DEMAND IN APPLICATIONS OF EVERY KIND, IN EVERY CLASS OF INDUSTRY.

Gilmer Endless Kable Kord Belts for flat-pulley drives are two-belts-in-one—contactor and power. Noted for flexibility, tight grip, pulling power, low stretch and long life.

GILMER V-BELTS

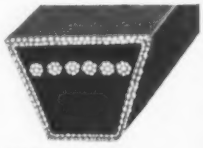
Noted for their tight grip, pullingpowerandlonglife



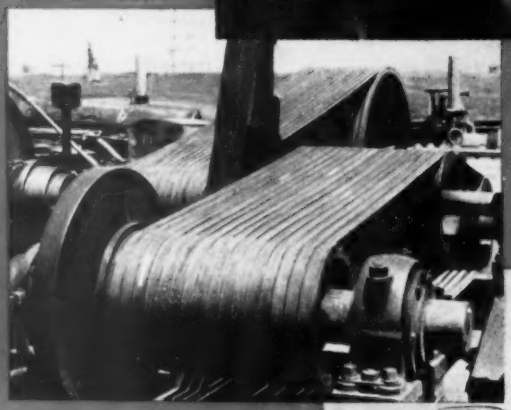
CROSS SECTION OF MULTIPLE V-BELT

Straight-wall construction causes belts to push outward and grip firmly as they flex around the sheaves, yet they unlock freely from the grooves the instant they straighten out. By a special process of precision molding, lengths are "cured" to within very small tolerances. Pulling cords are conditioned to control stretch. And extra heavy, wear-resistant jackets assure added months of dependable service.

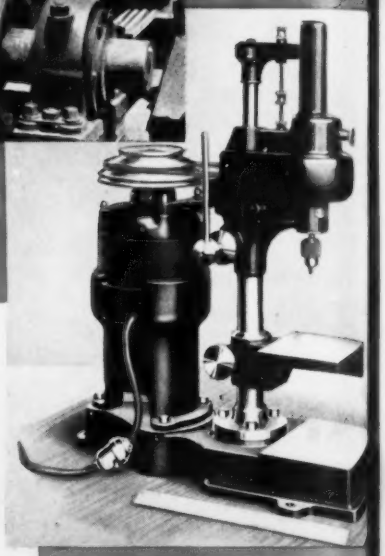
Gilmer has the largest assortment of V-molds in the world and can supply endless V-Belts in all standard and many special sizes for both multiple and F.H.P. drives. Also provided in rolls for use in running lengths with connectors. When desired belts are specially built to withstand conditions of excessive oil, acids, heat or static.



CROSS SECTION OF F.H.P. V-BELT

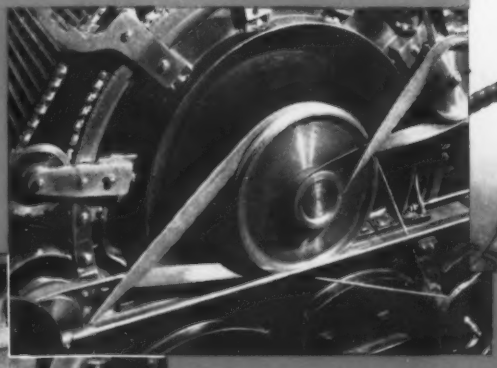


Gilmer Endless Multiple V-Belts are widely used in oil fields on pumping units, drilling rig drives and other heavy-duty applications.

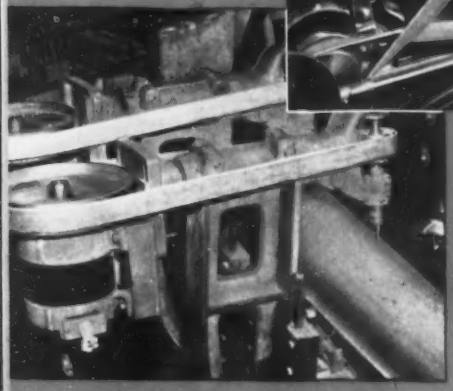


Gilmer Round Endless Belts are used in a large number of applications including small high-speed drills, hammers, tappers, saws, light woodworking machinery, valve refacers, etc.

Gilmer Special Industry Belts are widely used in Textile Mills (cone, lickerin, winder, spinner, gainer); by the lumbering (planer belts as shown here); and other industries.



Gilmer Endless V-Belts for F.H.P. service are made in a full range of standard sizes for light duty, small sheave, single belt applications.



Gilmer Speedage Endless Flat Belts are tough, wear-resistant, extremely flexible and deliver maximum power in high speed service.

Write for FREE copies of GILMER CATALOGS

GILMER GUIDE—a complete V-Belt catalog containing tables, charts and helpful engineering data.

KABLE KORD CATALOG—includes useful tables, formulas and other valuable information on flat belt drives.

TEXTILE BELT CATALOG—covers all branches of the industry and shows numerous applications.

SPECIAL PURPOSE BELTS CATALOG—belts of special constructions for applications in specific industries.

Gilmer BELTS

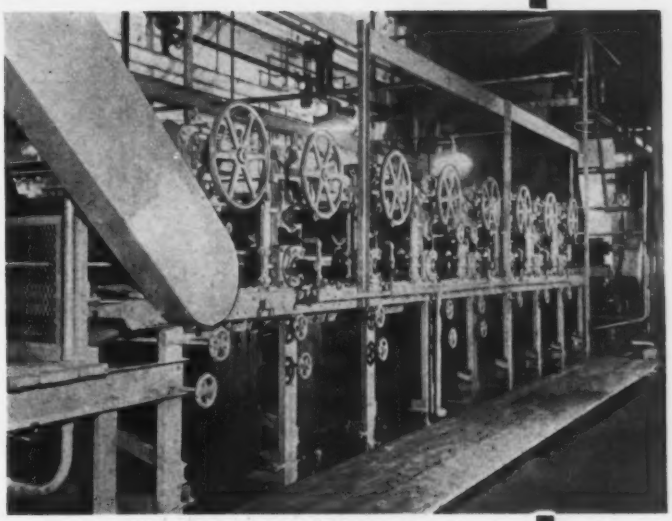
There is a Gilmer Distributor near you. Consult him regarding all your belt needs.

L. H. GILMER COMPANY

TACONY, PHILADELPHIA 35, PA.

DIVISION OF UNITED STATES RUBBER COMPANY

Stainless Steel PROTECTION with Clad Steel ECONOMY



Battery of 14 tanks, comprising washer and dye padder units, fabricated of a Lukens Clad Steel and installed by a mid-Western cotton textile finishing plant, which manufactures auto head lining material and textiles for curtains and draperies.

You can save money on equipment requiring the corrosion resistance and product protection of stainless steel by use of economical Lukens Stainless-Clad Steels. Other advantages include:

- ★ **Cladding available in any standard specification of stainless steel, including types 304, 316, 347, 410 and 430.**
- ★ **Uniform thickness of cladding.**
- ★ **Available in cladding from 5% to 50%.**
- ★ **Any quality of carbon or alloy steel backing plate.**
- ★ **Heat conductivity far superior to solid stainless.**
- ★ **Readily fabricated.**
- ★ **Plates from 3/16" to over 3" thick, or up to 162" wide. It is always cheapest to fabricate the widest plate usable.**
- ★ **Flanged and dished heads of all styles and sizes up to over 18' in diameter. Lukens has specialized in forming heads for over 55 years.**
- ★ **Backed by over 17 years' experience in the production of clad steels, starting with Lukens Nickel-Clad Steel, and now also including Inconel-Clad, Monel-Clad and Stainless-Clad Steels.**

★

Please write for our Bulletin 338, "Lukens Stainless-Clad Steels." Another Bulletin, 255, "Lukens Nickel-Clad, Inconel-Clad, Monel-Clad Steels," is also available.

★

LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

★

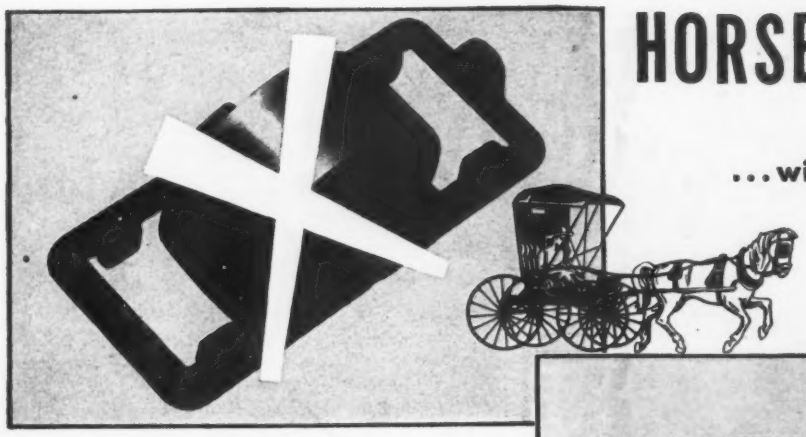
LUKENS STEEL COMPANY

World's Largest Plate Mill

Divisions: By-Products Steel Corporation • Lukenweld, Inc.

396 Lukens Building *Cable Address: Lukens* **Coatesville, Pa.**

IS YOUR TWISTER ROOM STILL IN THE HORSE & BUGGY STAGE?



. . . with old, wood-bearing, box-type, sliding, low-hung, lint and oil catching pulley assembly?

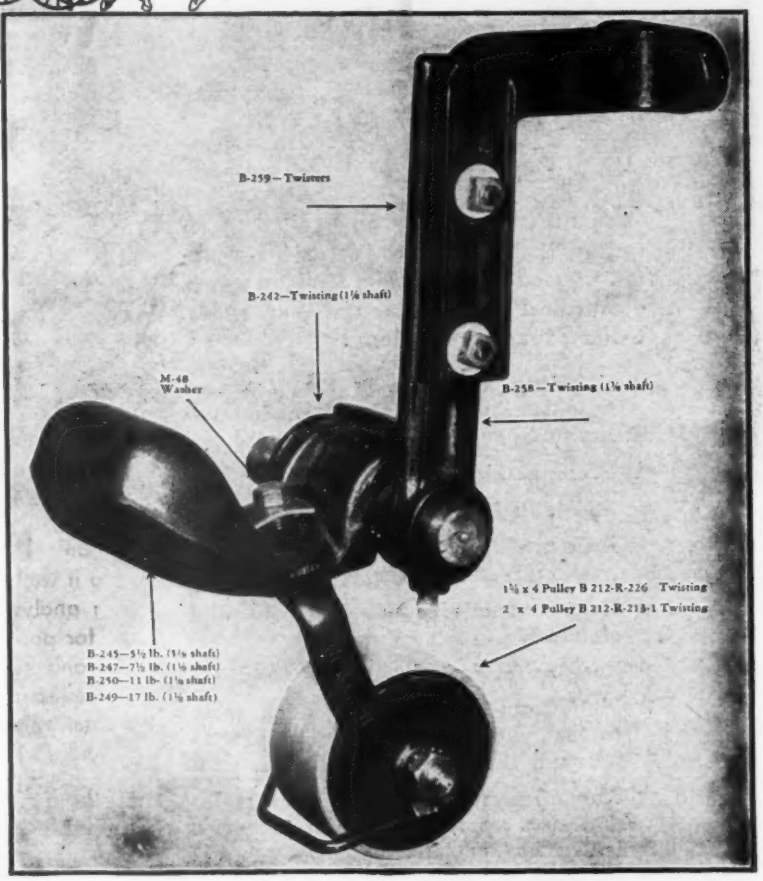
If so, we suggest that you replace these with Meadows Precision Heavy-Duty Ball Bearing Overhead Tension-Pulley assembly.

- **Overhead suspension minimizes oil-mist and humidity cleaning problem common with low-hung plain-bearing pulleys**
- **More uniform spindle speeds**
- **No stuck bearings**
- **Eliminate tape jump-off due to stuck or worn bearings**
- **Lubrication necessary only twice a year, or each 5000 hours**

Different pulley sizes, brackets and weights to handle any frame up to heaviest cable twisting.

Our representatives will check your frames with Stroboscope and tension scales and make proper recommendations.

Ample Stocks . . . Prompt Shipment
(*A repair and maintenance item*)



Representatives

JAMES P. COLEMAN,
P. O. Box 1351, Greenville, S. C.

WALTER S. COLEMAN,
P. O. Box 722, Salisbury, N. C.

MATTHEWS EQUIPMENT CO.,
93-A Broadway, Providence, R. I.

MEADOWS MANUFACTURING CO. · ATLANTA, GA.

. . . . Ball-Bearing Specialists to the Textile Industry . . . .

Now Available in standard types

COOPER Certified Stainless Steel Valves and Fittings

made of any wanted alloy to resist

Corrosion . . . Heat . . . Abrasion . . .

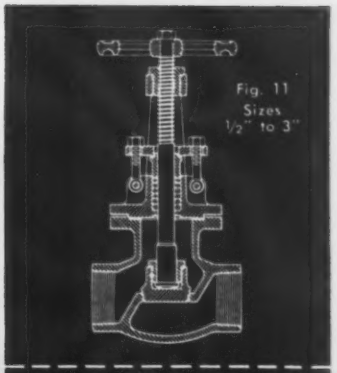


Fig. 11
Sizes
½" to 3"

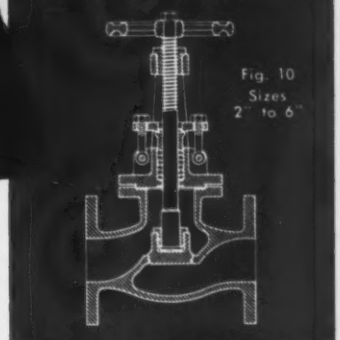


Fig. 10
Sizes
2" to 6"

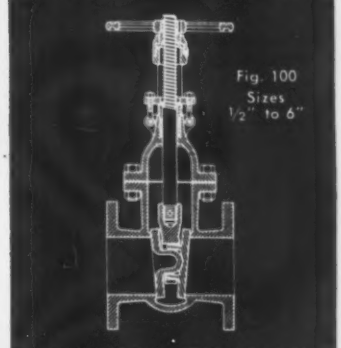


Fig. 100
Sizes
½" to 6"

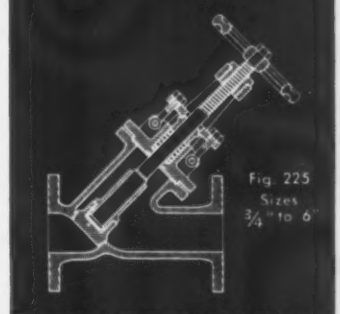


Fig. 225
Sizes
¾" to 6"

✻ Every Stainless Steel valve or fitting made by COOPER is backed by 25 Years of Stainless Steel "know-how". Each is "Certified" by COOPER to do its job and do it well . . . for in producing "Certified" valves COOPER registers the analysis of each heat and stamps each casting with its heat number for positive identification. When desired, a certificate of the analysis and heat number is issued the user. This certificate applies to all Stainless Steel parts which come in contact with the fluid being handled. Each valve or fitting rigidly meets the specifications of the job.

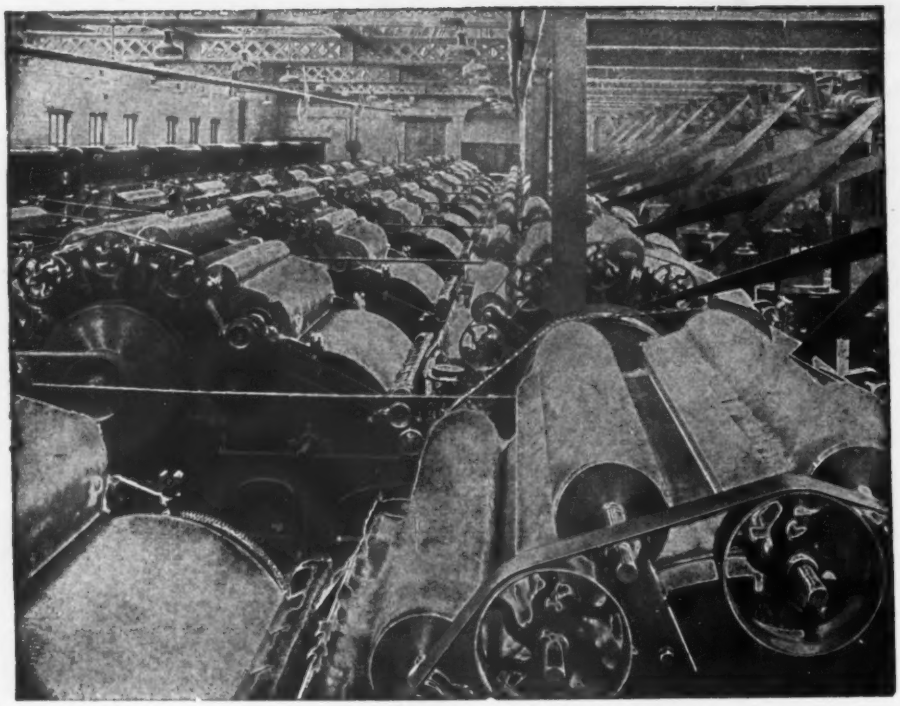
COOPER Valves and Fittings are sold through the largest Stainless Steel distributors in the country. Check with your local distributor.

The COOPER ALLOY FOUNDRY CO.

HILLSIDE, N. J.

Specialists in Corrosion Resisting Stainless Steel
. . . For a Quarter of a Century . . .

PLATT'S
WORSTED CARDING ENGINES



Panoramic view of a layout showing Worsted Carding Engines in operation.

Machines constructed in the greatest variety suitable for all types of Wools.

- ***RIGID CONSTRUCTION***
- ***EASE OF ADJUSTMENT***
- ***MAXIMUM PRODUCTION***

Prince·Smith & Stells Ltd.
INCORPORATING TAYLOR WORDSWORTH & Co. LTD
CONCESSIONAIRES FOR ALL WORSTED MACHINERY MANUFACTURED BY PLATT BROTHERS & CO. LTD. ASA LEES & CO. LTD.
KEIGHLEY
ENGLAND

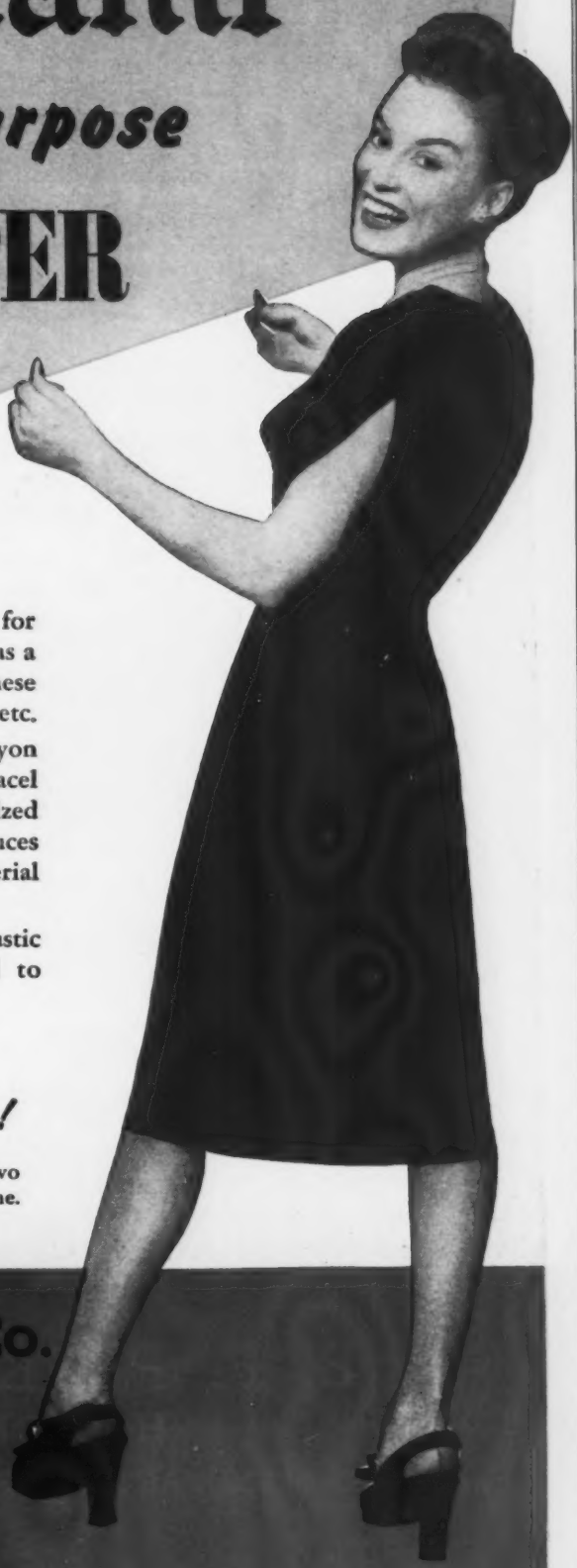
PSS/4

***Agents*, U. S. A. and Canada—English system machinery. Atkinson, Haserick & Co., 211 Congress St., Boston, Mass. *Agents*, U. S. A.-French system machinery, The Blake Electrical Mfg. Co., 178 Atlantic Ave., Boston 10, Mass.**

Hydroxanil

the Multi-Purpose

DEVELOPER



HYDROXANIL is not only excellent for acetate and nylon blacks but also finds extensive use as a developer for rayon and cotton developed colors. These include Diazo Black BH, Diazo Green 3G, Primuline, etc.

Wash-fast developed blacks on acetate and rayon combination materials may be obtained by using Maracel Developed Black A and Diazo Black BH diazotized and developed with Hydroxanil. This method produces greater wash-fastness than when this type of material is dyed with acetate and direct blacks.

Hydroxanil is simple to use—requires no caustic soda. Simply stir into boiling water and add to developing bath.

...Develops Complete in 30 Minutes!

MARCO PRODUCTS

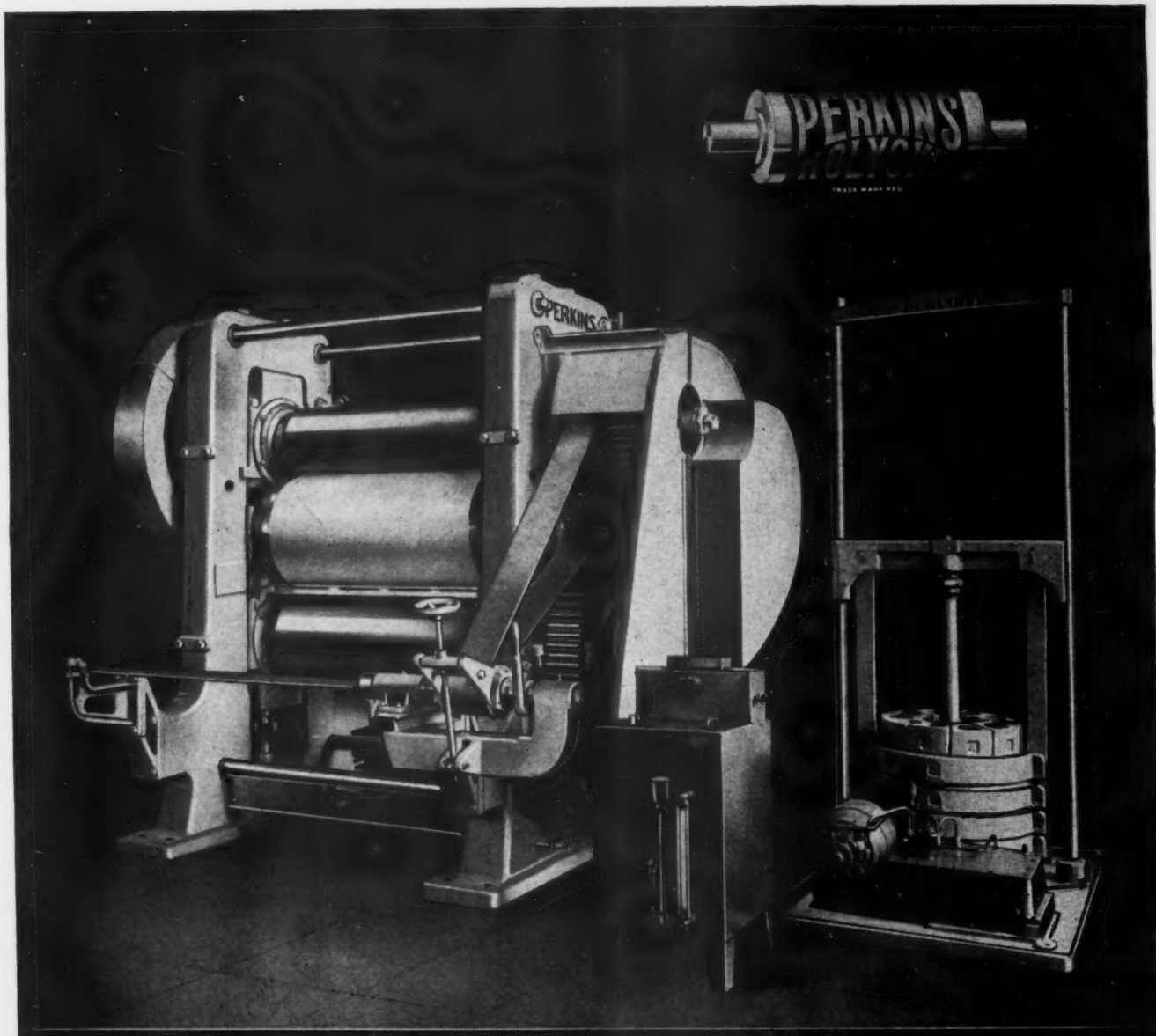
No excess rinsing or soaping required! Two batches dyed in the time usually required for one.

MAHER COLOR & CHEMICAL CO.

FACTORIES AND LABORATORIES

355 West Ontario Street, Chicago 10, Ill.

2327 East Eighth Street, Los Angeles 21, Calif.



TYPICAL of PERKINS engineering and rugged construction is this three-roll 46" HYDRAULIC FRICTION CALENDER, 60-ton pressure. All rolls in Timken anti-friction bearings. PERKINS CALENDERS—high factor of safety . . . simplicity of design . . . backed by long record of quality service in the textile industry.

B. F. PERKINS & SON, Inc.

HOLYOKE, MASS., U.S.A.

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

Firestone *Velon**

so easy to weave . . .

so easy to sell

NO-FADE COLOR CLEAR THROUGH

With Firestone *Velon* you no longer worry about fading in storage or in process, about matching different lots, about color variations even in the same lot. In this new yarn the color runs clear through, is an integral part of the yarn, stands up without change as long as the filament itself.

Velon is as easy to work as conventional yarns, which means smooth production. No special equipment or skill is required to make the wonderful fabrics that defy dirt, staining, shrinkage, fading, wear and age—and which sell so easily. Write Firestone, Akron, for details and for technical assistance.

BEST TODAY... STILL BETTER TOMORROW

LISTEN TO THE VOICE OF FIRESTONE MONDAY EVENINGS OVER NBC

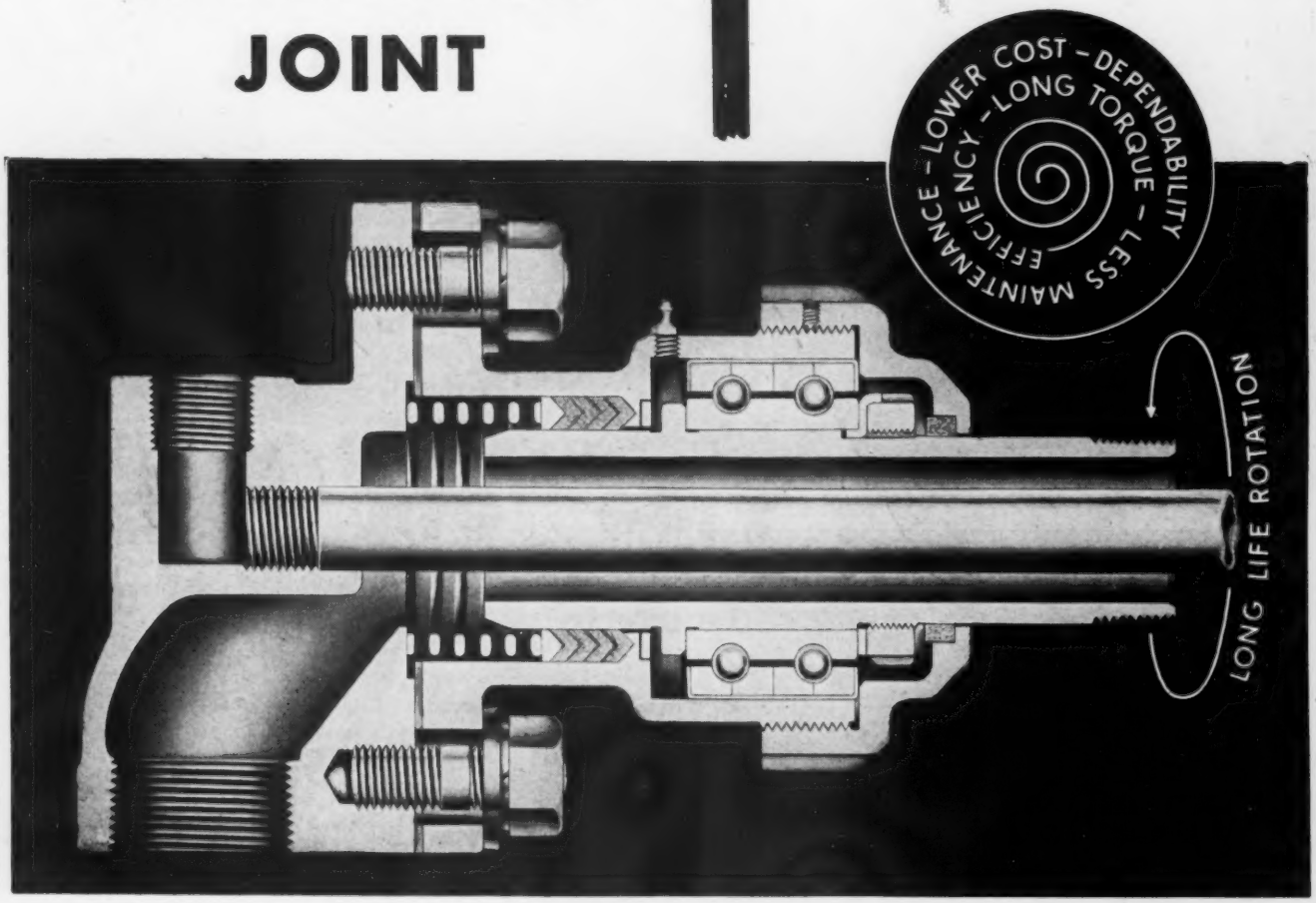
*Velon**

THE FABRIC OF TOMORROW ON THE LOOMS OF TODAY

*TRADE MARK

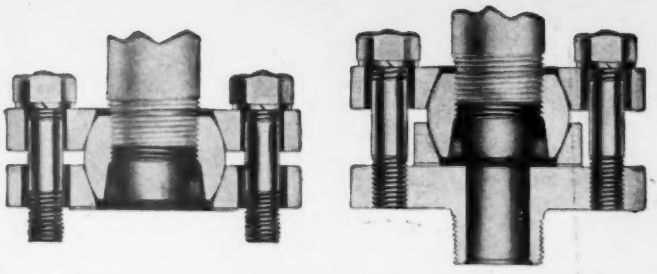
BARCO REVOLVING JOINT

Designed Especially for the Textile Industry



This Barco Joint is made for all types of rotating applications such as slashers, calenders, sanforizers, and dry cans. In textile weaving and finishing plants, and bleacheries, Barco minimizes steam leaks, and reduces power costs because of its lower turning torque.

For further particulars about this and other Barco Flexible Joints provided for the textile industry, write us concerning your needs and problems. The Barco Manufacturing Company, Not Inc., 1834 Winnemac Avenue, Chicago 40, Illinois.



BARCO BALL FLANGE—Cross-section view of Barco Ball Flange for use on threaded and flanged rolls and for correcting roll misalignment. Sleeve can rotate concentric even though threads on roll are tapped off center.

BARCO FLEXIBLE JOINTS

FREE ENTERPRISE—THE CORNERSTONE OF AMERICAN PROSPERITY

Not just a swivel joint ...but a combination of a swivel and ball joint with rotary motion and responsive movement through every angle.

In Canada: The Holden Co., Ltd., Montreal, Canada. "MOVE IN EVERY DIRECTION"

Ciba DYESTUFF GLIMPSES

In all science there is nothing more fascinating than the production of color from the sticky black substance we call coal tar. Many and various, however, are the steps that lead to the present day dyestuffs which help create our modern way of life by making clothing more cheerful, women more beautiful and life itself more enjoyable.

First comes the careful distillation of the coal tar to produce products like benzene, toluene and naphthalene. These are basic materials but Ciba has always recognized the fact that only the purest parent substances can give birth to dyestuffs of Ciba's standard. A good start is essential! As a result, these products and others developed by further processing are tested for purity again and again — as for instance, by determining the melting point.

For this purpose a little glass flask is necessary, fitted with a thermometer and a stirring appliance and heated by a small gas jet. The tiny glass tubes containing the substance under test are hung in the flask, dipping into the sulphuric acid or molten paraffin wax with which it is filled.

Let us suppose that a sample of naphthalene is being examined. If it melts at 80° C. exactly, the chemist is satisfied, for the naphthalene is pure. Should it melt at 77° C., however, it is impure and must be purified further. Every pure substance has a definite, known melting point. While naphthalene melts at 80° C., anthracene, for example, must not melt below 217° C.

DYESTUFFS • CHEMICALS • INTERMEDIATES

CIBA COMPANY, INC.

Greenwich & Morton Sts.

NEW YORK

BOSTON · CHICAGO · MONTREAL · CHARLOTTE
PROVIDENCE · SAN FRANCISCO · PHILADELPHIA

VAT DYES OF THE DOW CHEMICAL COMPANY

NEOLANS ON WOOL MEAN QUALITY RESULTS
with MINIMUM EFFORT

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

FACTORS

For Manufacturers and Merchants

Inquiries as to our services solicited

●

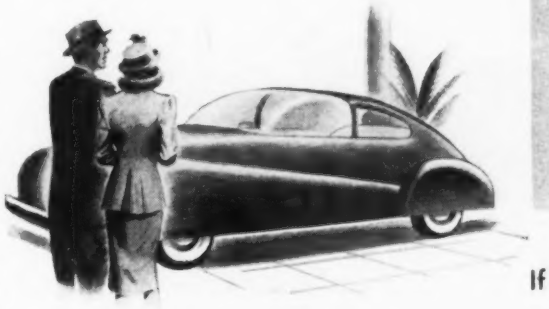
ESTABLISHED 1840

Why you should look into RESLOOM

NOW

When Resloom . . . Monsanto's unique melamine resin for crush-resistant rayon, wool, cotton and their blends . . . was introduced some months ago, it offered a degree of (1) crush resistance, (2) shrinkage control, and (3) lasting stability never before attained in the industry.

Today, continuing research by Monsanto has made Resloom even better in these three important regards. Millions of yards of Resloom treated fabrics, from many of the finest and most famous fabric houses, testify to the added, merchantable quality and satisfaction that Resloom delivers.



"Constantly Improved, but No Yearly Models"

If you have never discovered what Resloom can do for the textiles you manufacture or use . . . or if you haven't learned *lately* what Resloom will do . . . you owe it to yourself to consult Monsanto's textile chemists at once . . . for samples, technical information, or actual mill trials. Simply write, wire or phone: MONSANTO CHEMICAL COMPANY, Textile Chemicals Department, 140 Federal St., Boston 10, Massachusetts.

Resloom Reg. U. S. Pat. Off.

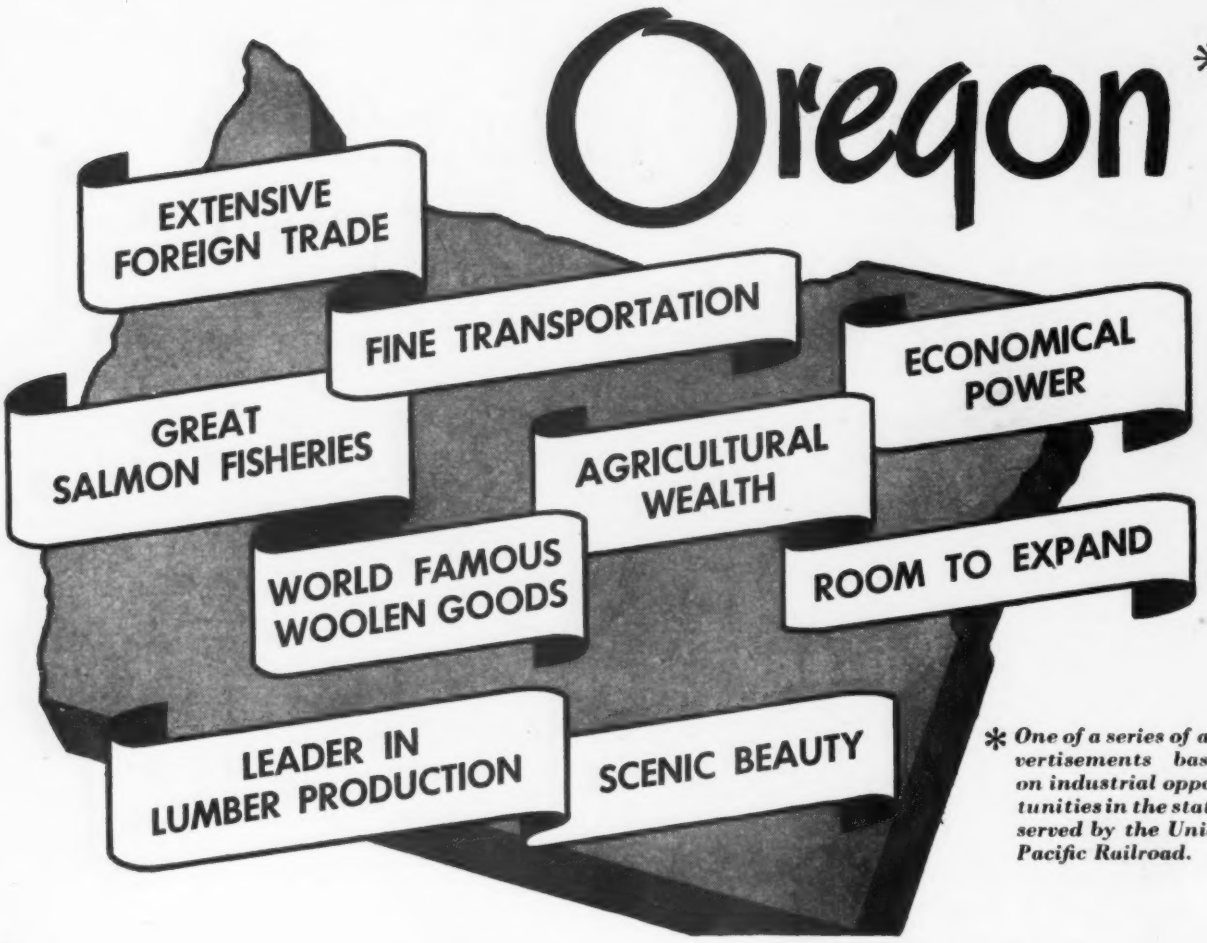
MONSANTO
CHEMICALS AND PLASTICS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

UNION PACIFIC

TREASURE MAP OF INDUSTRY

Oregon*



* *One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.*

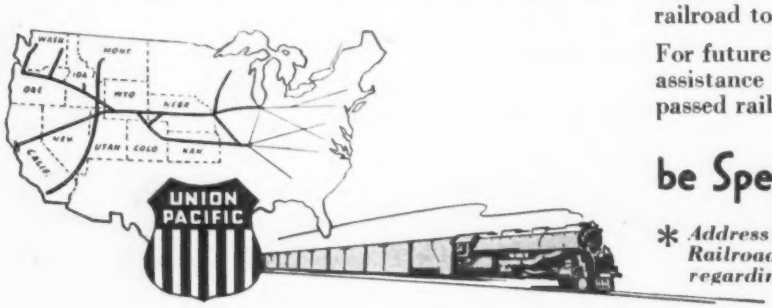
When the Beaver State presents its business card, it could justifiably read, "Enterprise, Unlimited." Industry re-discovered Oregon during the war. It found boundless opportunities capable of providing a livelihood for 10 times the state's present population.

Topographical, soil and climatic features make possible a variety of agricultural pursuits. The fabulous Willamette Valley—some three million acres—is a cornucopia of agricultural wealth. A tremendous quantity of lumber is available. The state has one-fourth of the country's standing saw timber. Salmon fisheries and woolen goods are world-famous. Portland's roomy harbor is a flourishing gateway of foreign commerce.

Huge Bonneville Dam assures ample and economical power. A new development program calls for four more dams. Oregon is noted for low electric rates.

Union Pacific provides Oregon with excellent freight and passenger transportation. Gigantic locomotives haul the state's products eastward over the "strategic middle route." And—just recently—Union Pacific inaugurated daily Streamliner service on the "City of Portland" between Portland and Chicago; the first railroad to provide such service.

For future industrial enterprise, remember Oregon. For assistance in selecting industrial sites and for unsurpassed rail transportation, just . . .



be Specific – say "Union Pacific"

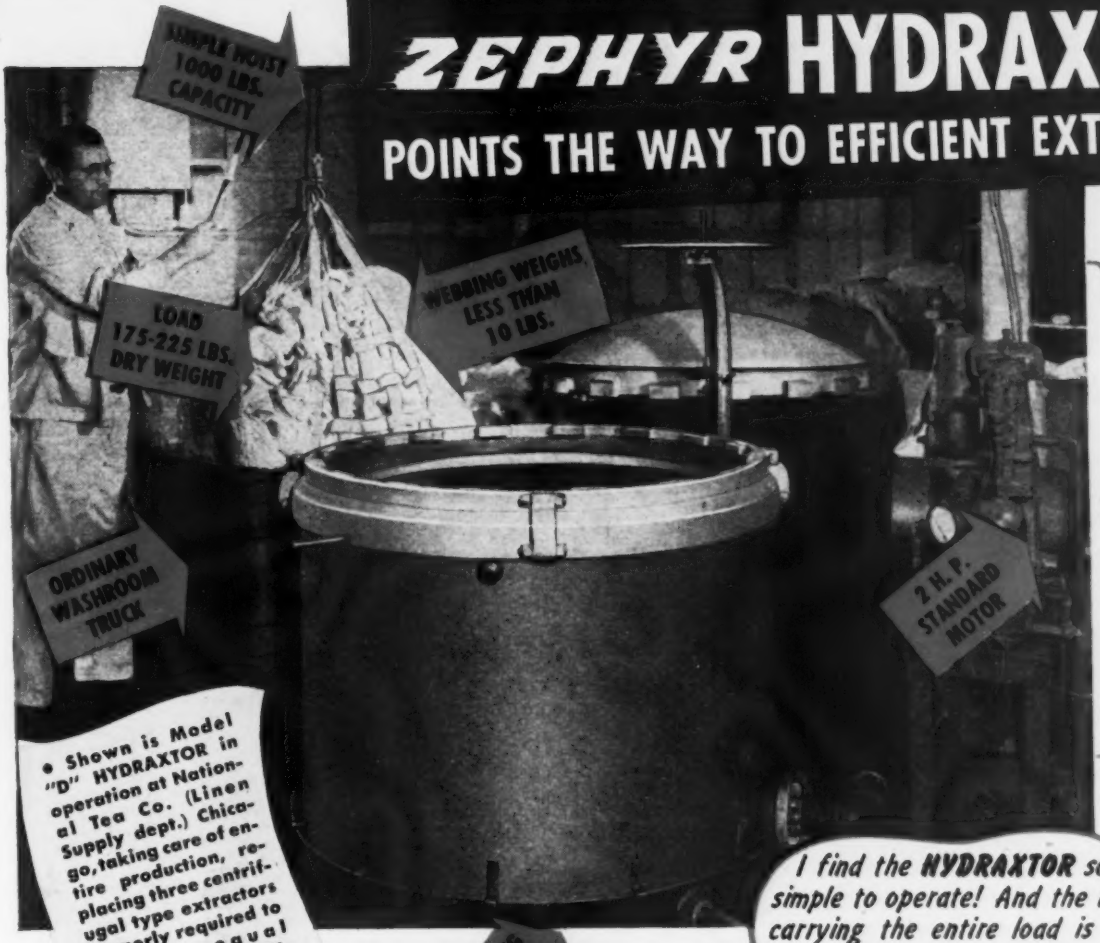
* *Address Industrial Department, Union Pacific Railroad, Omaha 2, Nebraska, for information regarding industrial sites.*

UNION PACIFIC RAILROAD

THE STRATEGIC MIDDLE ROUTE

ZEPHYR HYDRAXTOR

POINTS THE WAY TO EFFICIENT EXTRACTION


SIMPLE HOIST 1000 LBS. CAPACITY
LOAD 175-225 LBS. DRY WEIGHT
WEBBING WEIGHS LESS THAN 10 LBS.
ORDINARY WASHROOM TRUCK
2 H. P. STANDARD MOTOR
NO BOLTING TO FLOOR— NO VIBRATION

Complete Operating Cycle is Only 6 to 12 Minutes — Including Loading and Unloading — Depending Upon Work Extracted

• Shown is Model "D" HYDRAXTOR in operation at National Tea Co. (Linen Supply dept.) Chicago, taking care of entire production, replacing three centrifugal type extractors formerly required to produce equal amount of work. HYDRAXTOR installed on fifth floor — but no bolting or foundations necessary... no expensive trolleys or overhead systems.

I find the ***HYDRAXTOR*** *so simple to operate! And the net carrying the entire load is so light--weighs only 3 or 4 pounds--*

the Zephyr HYDRAXTOR is like no other extractor in use today...

The HYDRAXTOR operates on a principle which is the direct opposite of centrifugal extraction. It extracts moisture from the goods by *gentle squeezing*—the mechanical counterpart of squeezing by hand—thus making it possible for the most delicate fabrics to be extracted without fear of damage and without setting wrinkles. The HYDRAXTOR is adaptable for any type of extracting in any plant. It is noiseless, vibrationless, never needs balancing. It produces more work per hour, based on same degree of moisture extraction, than any other type of extractor—*irrespective of size or price!*

Deliveries Now!

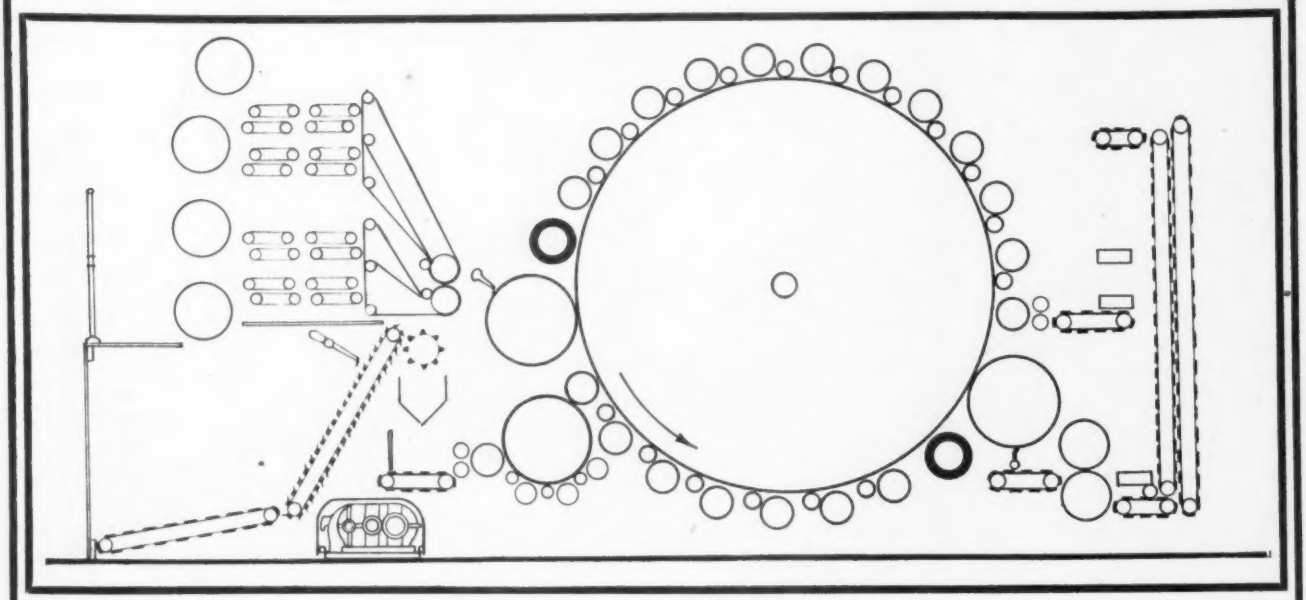
For over a year we held back deliveries on HYDRAXTORS until we made absolutely certain of their flawless workmanship and performance. Deliveries are now being made.

Write for Descriptive Literature!

ZEPHYR
LAUNDRY MACHINERY COMPANY
GENERAL OFFICES
212 EAST ERIE STREET, CHICAGO 11, ILLINOIS

NO. 1 OF A SERIES SHOWING THE *ZEPHYR* HYDRAXTOR IN ACTION

INTRODUCING
THE IMPROVED WOOLEN CARD



All patents applied for

This one-cylinder CARD, utilizing both the upper and lower portions of the main cylinder, represents the first radical improvement in Woolen Carding in the last seventy-five years.

This machine consists of a feed, card proper with intermediate feed and Peralta rolls "built in," and a tape condenser. The complete unit is equivalent to a three-cylinder set.

Present models are available in 72″ widths only, with either 120 or 144 ends.

Here's why we say *Improved* woolen CARD:

1. Greater production with ½ usual horse power.
2. Requires ½ usual floor space.
3. Reduced fly waste.
4. Simplified strippings.
5. Completely positive drive and improved-type bearings simplify maintenance.
6. All fabricated construction eliminates casting breakage.

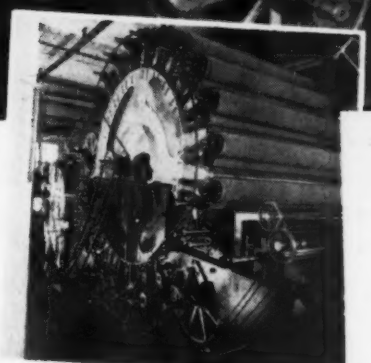
This machine can be shipped as a ready-to-run unit, complete with card clothing

NEW ENGLAND MACHINE WORKS

WATERBURY 16, CONNECTICUT

New Type Woolen Card Secures SMOOTH, POSITIVE DRIVE with

WHITNEY Roller Chain



Chain driven worker rolls produce smooth carding action.

Main cylinder and stripper rolls are chain driven for positive performance

This single cylinder Woolen Card, developed by New England Machine Works of Waterbury, Conn., produces quality roving at a high rate yet requires unusually small floor space, as compared with conventional carding machines. Its many new design features result in more accurate and simplified settings and greater operating efficiency.

Like many progressive textile machinery manufacturers, New England Machine Works specifies Whitney *chain drive* to insure the smooth, positive power transmission required by this machine. Whitney chain, *the all steel drive,* delivers constant full power without slipping or friction loss. Roller chain cushions shock . . . a vital *plus* feature which helps to reduce waste and fibre damage assuring high quality, uniform roving. It gives maximum long-lived service with minimum maintenance.

Regardless of the type of machinery, you will find it pays to *standardize* on Whitney. And remember . . . the best combination for sure, positive drives is Whitney chain plus Whitney cut-tooth sprockets. Write for information.

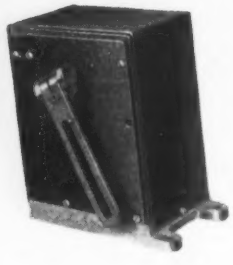
THE WHITNEY CHAIN AND MANUFACTURING COMPANY
HARTFORD 2, CONNECTICUT

AUTOMATIC *Electrically Operated* CONTROLS

for all types of HEATING HUMIDIFYING OR AIR CONDITIONING *installations*

by

BARBER-COLMAN



1. MOTOR-OPERATED VALVES for on-off or proportioning control of high or low pressure steam and hot or chilled water.

2. REMOTE BULB THERMOSTATS and MICROTHERMS for controlling system temperatures in heating or air conditioning installations of all types and sizes.

3. Room-type HYGROSTATS for controlling the operation of humidifying equipment to maintain the desired amount of relative humidity.

4. Room-type THERMOSTATS for maintaining uniform temperature in offices, weave rooms, spinning rooms, warehouses, and other buildings.

5. Room-type MICROTHERMS for accurate automatic control of humidifying and air-conditioning systems.

6. Two-position DAMPER CONTROL MOTORS having many applications for operation of dampers in duct systems.

7. Heavy-duty, oil-submerged DAMPER CONTROL MOTORS in a wide variety of types and sizes for two-position, multi-position, or proportioning service.

Write today for further information on Barber-Colman Controls. A nation-wide engineering and service organization stands ready to help solve your control problems.

BARBER-COLMAN COMPANY

ROCKFORD, ILL. • BOSTON, MASS. • GREENVILLE, S. C. • GREENSBORO, N. C. • ATLANTA, GA.

✓FEWER SECONDS
✓REDUCED FIRE HAZARD
✓LOWER MAINTENANCE COSTS

when the Gulf Lubrication Engineer is "in the picture"

The Gulf Lubrication Engineer in the picture (left) helped reduce seconds and improve efficiency in this weave shed, one of the world's largest.

ARE you putting up with excessive power and maintenance costs for your weave room? Gulf Lubrication Engineers have helped many mills slash these controllable costs, and at the same time reduce seconds, lessen fire hazard.

Why not call in one of these experienced specialists to consult with your operating and maintenance personnel in a further effort to improve your lubrication and reduce your costs? The Gulf Lubrication Engineer will recommend the proper oils and greases for every moving part, and the best methods of application—then co-operate closely with your men to keep lubrication on a sound scientific basis the year-round.

Make sure you are getting the benefits of all recent developments in petroleum science. Write, wire, or phone your nearest Gulf office today and ask a Gulf Lubrication Engineer to call.

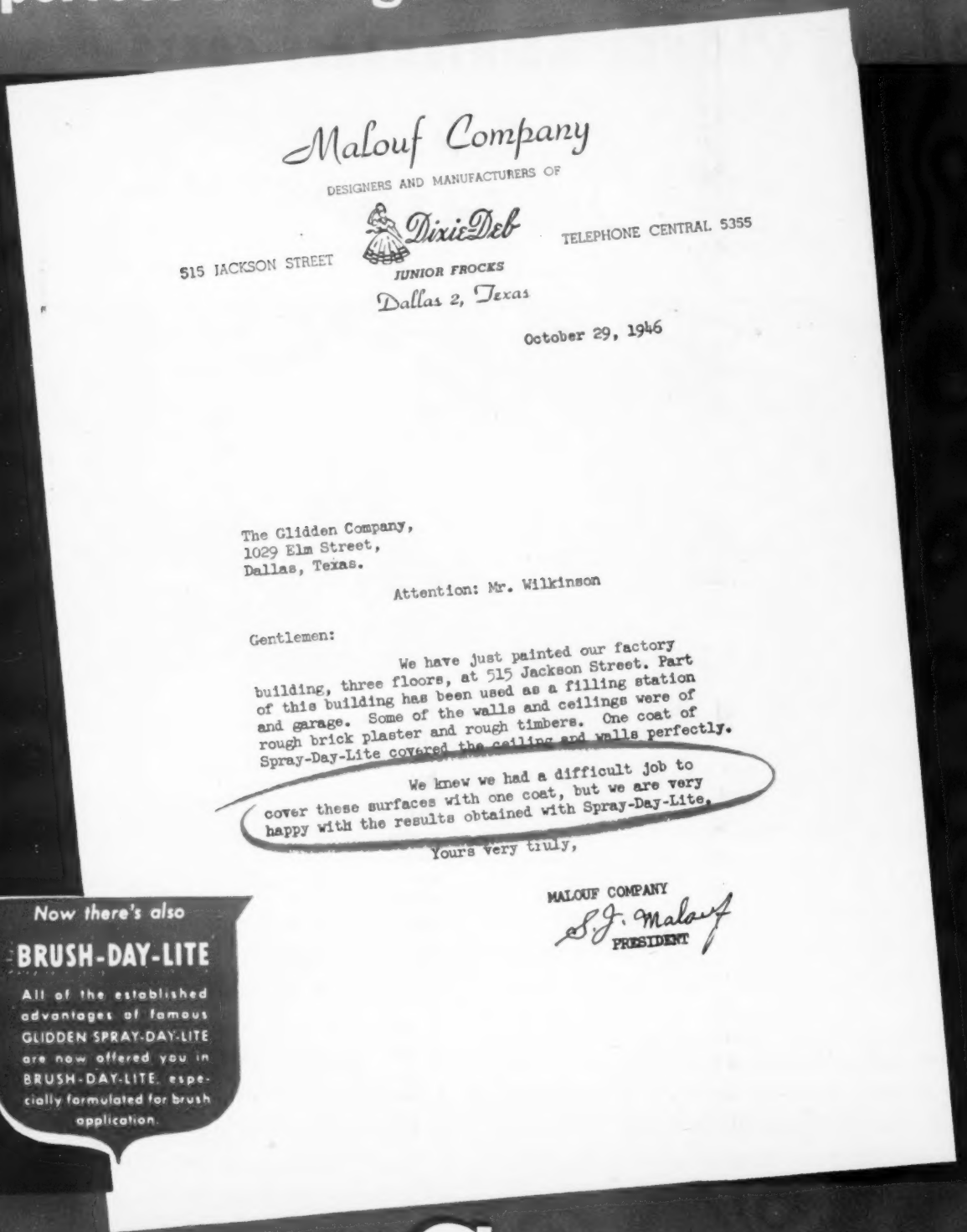
GULF INDUSTRIAL LUBRICATION

Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices:

Boston · New York · Philadelphia · Pittsburgh · Atlanta
New Orleans · Houston · Louisville · Toledo

Feared tough job, dress plant gets perfect coverage from one coat of...



Malouf Company

DESIGNERS AND MANUFACTURERS OF

DixieDeb
JUNIOR FROCKS

515 JACKSON STREET — TELEPHONE CENTRAL 5355

Dallas 2, Texas

October 29, 1946

The Glidden Company,
1029 Elm Street,
Dallas, Texas.

Attention: Mr. Wilkinson

Gentlemen:

We have just painted our factory building, three floors, at 515 Jackson Street. Part of this building has been used as a filling station and garage. Some of the walls and ceilings were of rough brick plaster and rough timbers. One coat of Spray-Day-Lite covered the ceiling and walls perfectly.

We knew we had a difficult job to cover these surfaces with one coat, but we are very happy with the results obtained with Spray-Day-Lite.

Yours very truly,

MALOUF COMPANY
S. J. Malouf
PRESIDENT

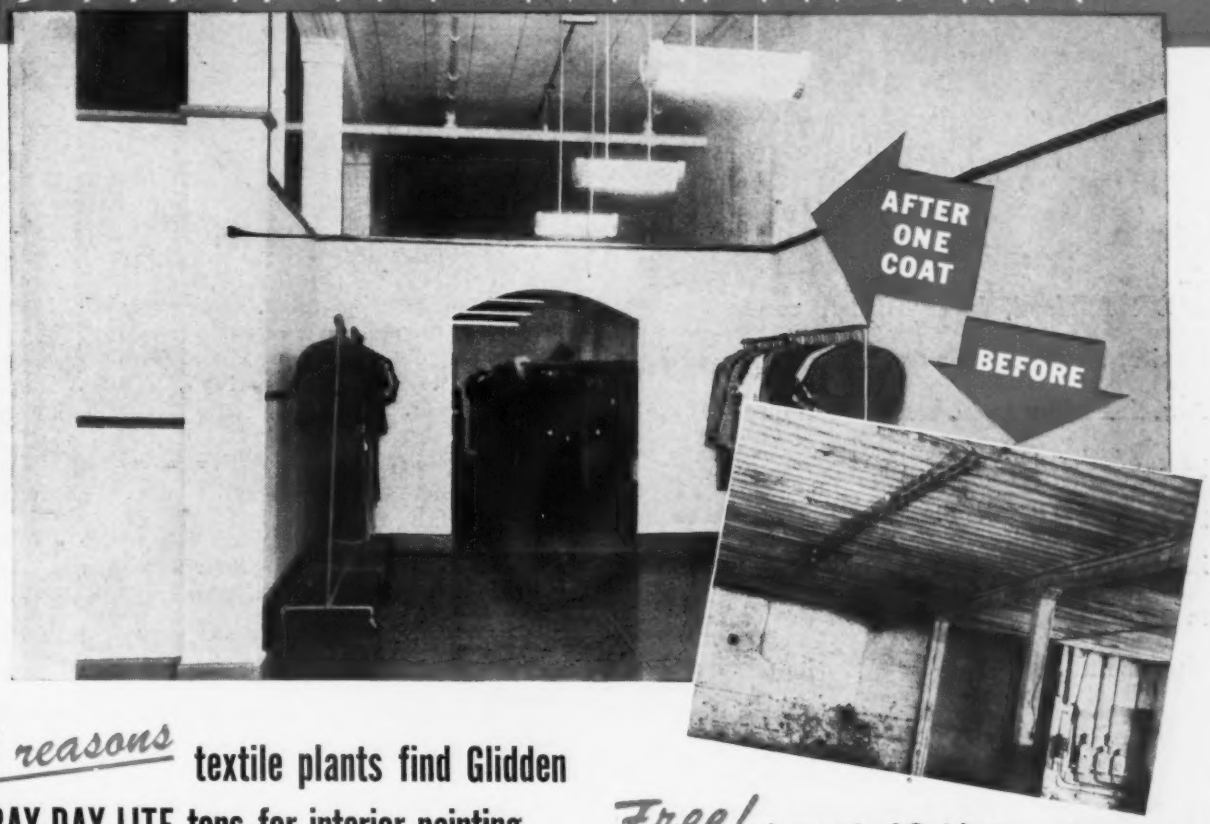
Now there's also

BRUSH-DAY-LITE

All of the established advantages of famous GLIDDEN SPRAY-DAY-LITE are now offered you in BRUSH-DAY-LITE, especially formulated for brush application.

★ ★ **Glidden**

SPRAY-DAY-LITE



6 reasons textile plants find Glidden SPRAY-DAY-LITE tops for interior painting...

1. **SPRAY-DAY-LITE gives conventional two-coat results in only one coat.**
2. **Increases lighting efficiency by giving *maximum* light reflection and diffusion.**
3. **Provides smooth, solid covering over grimy, dirty and badly discolored surfaces of almost any type.**
4. **Its intense white does not yellow with age (also available in 10 attractive colors).**
5. **Durable, egg-shell finish eliminates eye-straining glare—washes like tile.**
6. **Sprayed or brushed, it does not sag or run; produces little fog or mist when sprayed.**

TIME-TESTED

Pacemaker in Paints

Free! A practical Guide to "Sight Perfection" in plants by Glidden Color Authorities

Tells and shows how to follow scientific, E-Z-C Color Planning in painting interiors and machines to ease eyestrain, boost production, reduce accidents. Send coupon for it today. If you don't find all the guidance you need in this book, the Glidden Color Studio will design color plans tailored to your particular needs—without charge.

THE GLIDDEN COMPANY, Dept. T-4
11001 Madison Avenue, Cleveland 2, Ohio

- ☐ You may send your SPRAY-DAY-LITE Color Chart showing the 10 attractive shades and suggested color combinations.
- ☐ You may send your book on the scientific use of color in industrial plants, "Sight Perfection."
- ☐ You may have your representative call and demonstrate SPRAY-DAY-LITE in our premises without obligation on our part.

NAME_____

COMPANY_____ TITLE_____

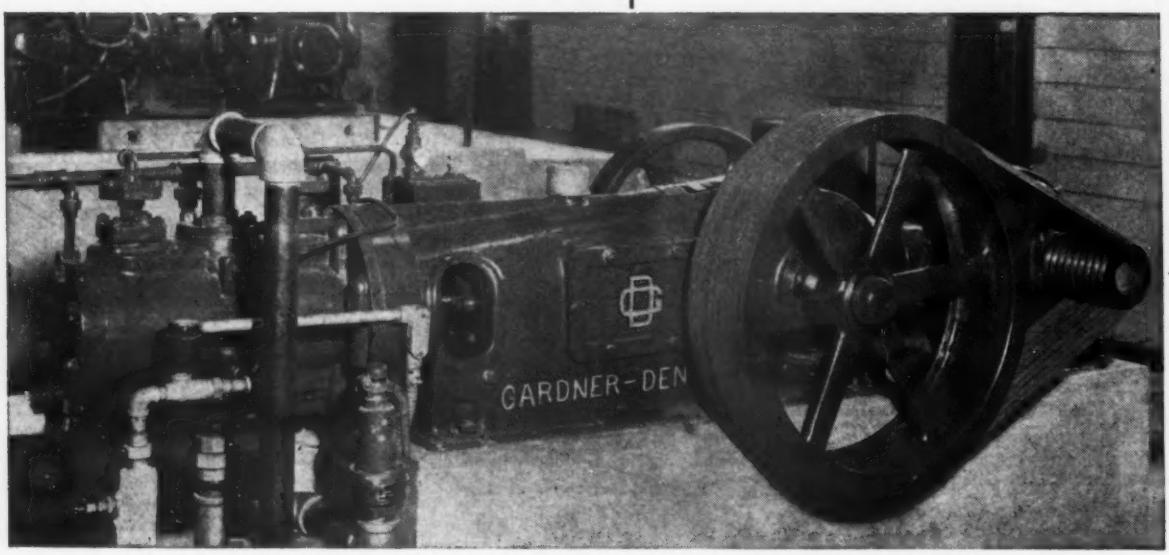
ADDRESS_____

CITY AND STATE_____

where service is round the CLOCK

FOR full-load, heavy-duty, continuous service, an air compressor must be *rugged*. And that's why ruggedness is built into every part of the Gardner-Denver "RX" Compressor. From its strongly ribbed frame to its alloy iron cylinders, it is engineered to stay on the job — day after month. Here are some of its features:

- *Special cylinder design for high volumetric efficiency and low horsepower requirements*
- *Duo-plate cushioned valves—simple, durable, unusually quiet.*
- *Crankshaft supported by Timken adjustable double row tapered roller bearings.*
- *Large and unrestricted port areas help reduce heat of compression; insure effective lubrication with minimum oil consumption.*
- *Suction valve unloaders on all inlet valves result in lowest power consumption during unloaded period.*
- *Oil-tight, dust-tight construction.*

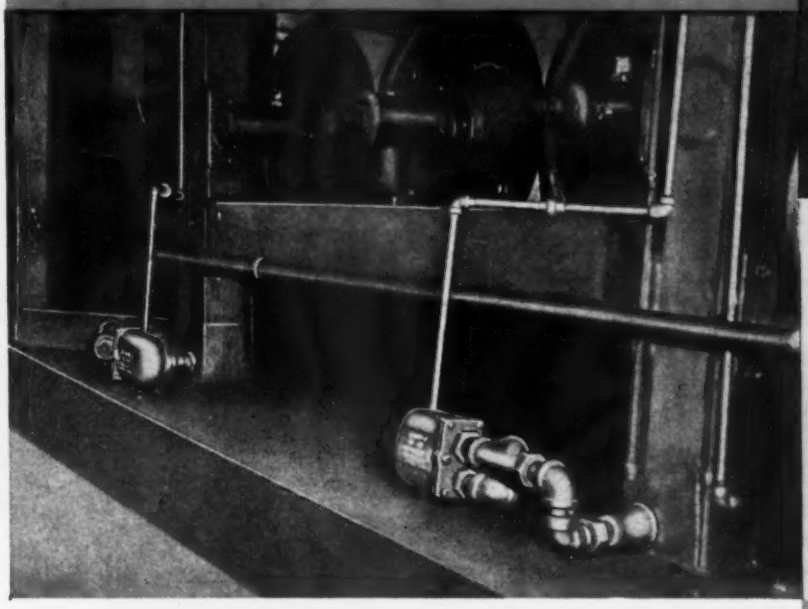


Gardner-Denver Class "RX" Single Stage Horizontal Compressor—available in capacities from 89 to 1292 cubic feet displacement per minute.

GARDNER-DENVER SINCE 1859

Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazleton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.

Dyeing AND *Drying*



WITH SARCO STEAM TRAPS AND CONTROL

Rotating cylinders as used in the paper and textile industries accumulate heavy condensate if not properly drained and vented. If any cylinder lags behind others—the material sags on one side, stretches until it breaks on the other. Hours are lost in starting up again.

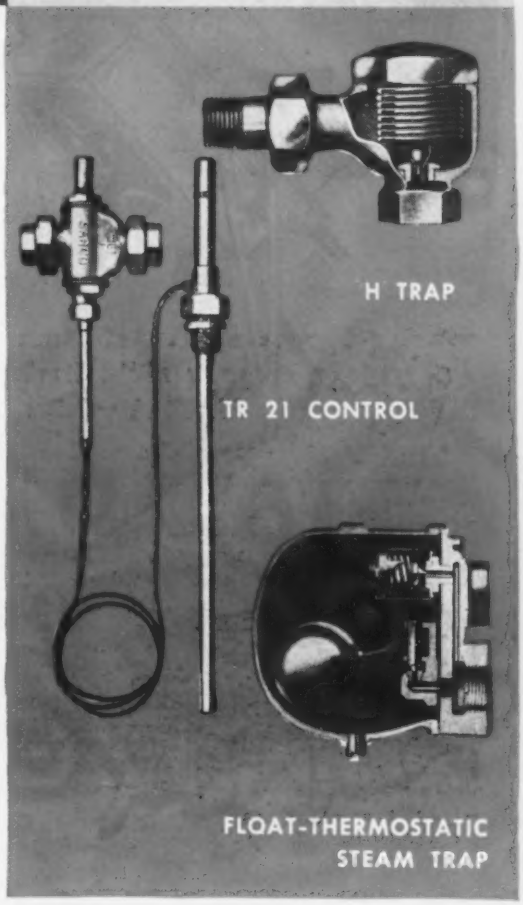
Sarco FT Steam Traps with H Air Vents at the top settled this problem in a large textile plant in Brooklyn. Sarco TR 21 Temperature Controls are used on the dye vats which immediately precede the drying operation.

This job was engineered by the local Sarco representative. The cost was negligible compared to the results obtained.

Adequate removal of condensate and air, and satisfactory temperature control can provide that added margin of profit in any industry using steam. The combined advantages of faster work, fewer stoppages and rejects and less fuel will work for you every hour.

Sarco products work as a team. The right combination costs less in the first place—lasts longer—serves best.

143



SARCO SAVES STEAM

SARCO COMPANY, INC.
Represented in Principal Cities
475 FIFTH AVE., NEW YORK 17, N. Y.
SARCO CANADA, LTD., TORONTO 1, ONTARIO

OBSOLETE? UNSAFE? TOO SMALL?

If your present equipment is more of a hindrance than a help, remember Otis has the size, capacity and speed for every freight or materials-handling job — and your local Otis office is prepared to specify an elevator precisely suited to your needs. *Call Otis today.*

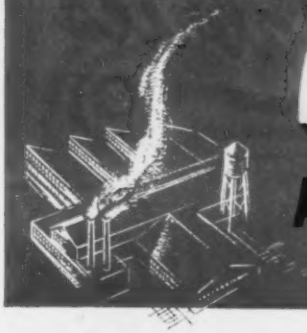
OHIO? GEORGIA? OREGON?

Our 245 offices are manned by trained experts who are familiar with local conditions. This means a *better* solution to your problems, regardless of your plant's size or location. What's more, the same painstaking workmanship, the same anxious-to-please service go into every job we handle — small or large, one elevator or 20. *Call Otis today.*

Yes, wherever you are, whatever your elevator needs may be, Otis can serve you better.

Otis ELEVATOR COMPANY
OFFICES IN ALL PRINCIPAL CITIES

Save Time–Save Air–with LINCOLN AIRLINE ACCESSORIES

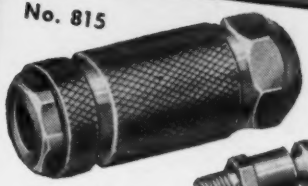


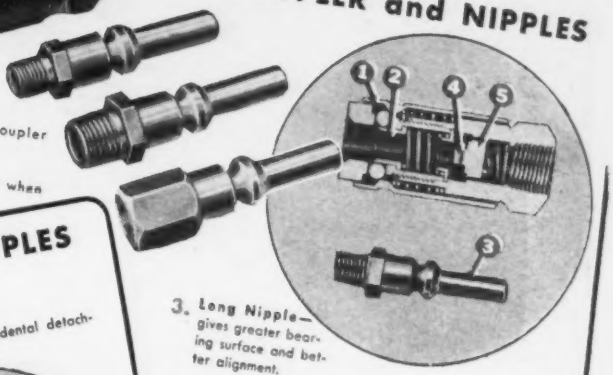
LINCOLN Flex-O-Matic* Air Couplers and Nipples are designed to assure more efficient use of compressed air with greater ease and speed of operation. Connected by a straight push, the coupler locks firmly in place regardless of air pressure and cannot be disconnected accidentally. Hose is prevented from kinking by the smooth swivel action of coupler on nipple. For greater savings in time, effort and air, standardize on Lincoln Flex-O-Matic Volume Air Couplers and Nipples. They are available in three sizes, ¼", ½", and ⅜" pipe thread.

*Trade Name Registered U. S. Patent Office.

Lincoln STANDARD VOLUME COUPLER and NIPPLES

No. 815





FEATURES

1. **Locking Sleeve**—holds coupler firmly in place.
2. **Bushing**—forces pin out when sleeve is drawn back.
3. **Long Nipple**—gives greater bearing surface and better alignment.
4. **Single Packing**—prevents air leakage.
5. **Check Valve**—permits free flow of air.

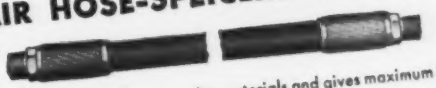
Lincoln HEAVY-DUTY VOLUME COUPLER and NIPPLES

No. 818

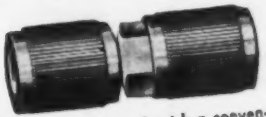
FEATURES

1. **Locking Sleeve**—holds coupler firmly in place.
2. **Bushing**—forces pin out when sleeve is drawn back.
3. **Long Nipple**—gives greater bearing surface and better alignment.
4. **Single Packing**—prevents air leakage.
5. **Check Valve**—permits free flow of air.
6. **Flange**—additional protection against accidental detachment.

Lincoln AIR HOSE-SPLICERS-FITTINGS



Air Hose is skilfully made from highest quality materials and gives maximum flexibility at all pressures. Precision machined steel fittings are coupled to hose for quick, easy connections.



Air Hose Splicers furnish a convenient air-tight method of connecting two sections of air hose.

Air Hose Fittings provide a strong, neat, air-tight hose-end connection, quickly and easily applied. Fittings may be reused as often as desired.

Lincoln AIR BLOW GUN

No. 840

Light weight, well-balanced, with thumb-action trigger. Has steel nozzle tip. Inlet ¼" P.T. Female.

LINCOLN

Write for Complete Information

B47-1A

Pioneer Builders of Engineered Lubricating Equipment

LINCOLN ENGINEERING CO., ST. LOUIS 20, MISSOURI

A FLETCHER *just loves fine fabrics*

FLETCHER WHIRLWIND EXTRACTOR

GOING TO ATLANTIC CITY FOR THE KNITTING ARTS EXHIBITION?

Stop off at Fletcher Works on your way to or from the show. Our factory is convenient to North Philadelphia Station. Let us tell you the "inside story" of Fletcher Extractors. See these machines both assembled and disassembled. If unable to stop in to see us, let us send you our descriptive catalog.

REASONABLE PRICES . . . PROMPT DELIVERIES

FLETCHER WORKS

223 GLENWOOD AVE. **PHILADELPHIA** **40** ESTABLISHED • 1850

A. Use the right type valve for the service
B. Place valves correctly in the line
C. Choose Jenkins Valves for lifetime economy

Only Valves with 9 Lives will keep today's Maintenance down

To make sure of extra-long valve life and minimum valve maintenance, follow this simple A-B-C formula.

By choosing Jenkins Valves, you get the accumulated experience of nearly 100 years of valve manufacturing. Countless records prove that Jenkins advanced design, better materials, and better workmanship pays off in lower overall valve costs.

You also get expert counsel of top-notch valve specialists, Jenkins Engineers, whenever you need help on valve selection or placement. *For lowest cost in the long run,* follow this formula . . . choose Jenkins Valves. *Jenkins Bros., 80 White Street, New York 13; Bridgeport; Atlanta; Boston; Philadelphia; Chicago; San Francisco. Jenkins Bros. Ltd., Montreal, Canada.*

SINCE 1864

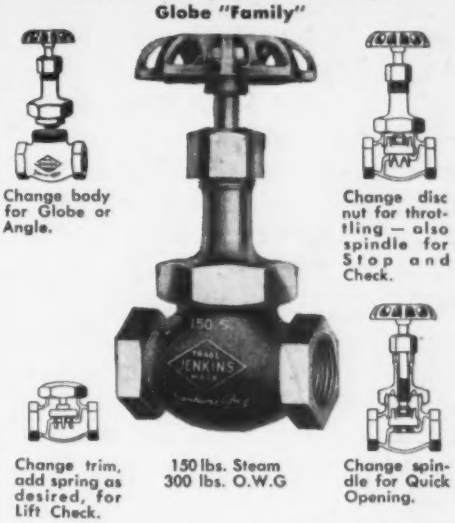
JENKINS VALVES

For every Industrial, Engineering, Marine, Plumbing-Heating Service . . . In Bronze, Iron, Cast Steel and Corrosion-resisting Alloys . . . 125 to 600 lbs. pressure

Sold Through Reliable Industrial Distributors Everywhere

JENKINS FIG. 106-A

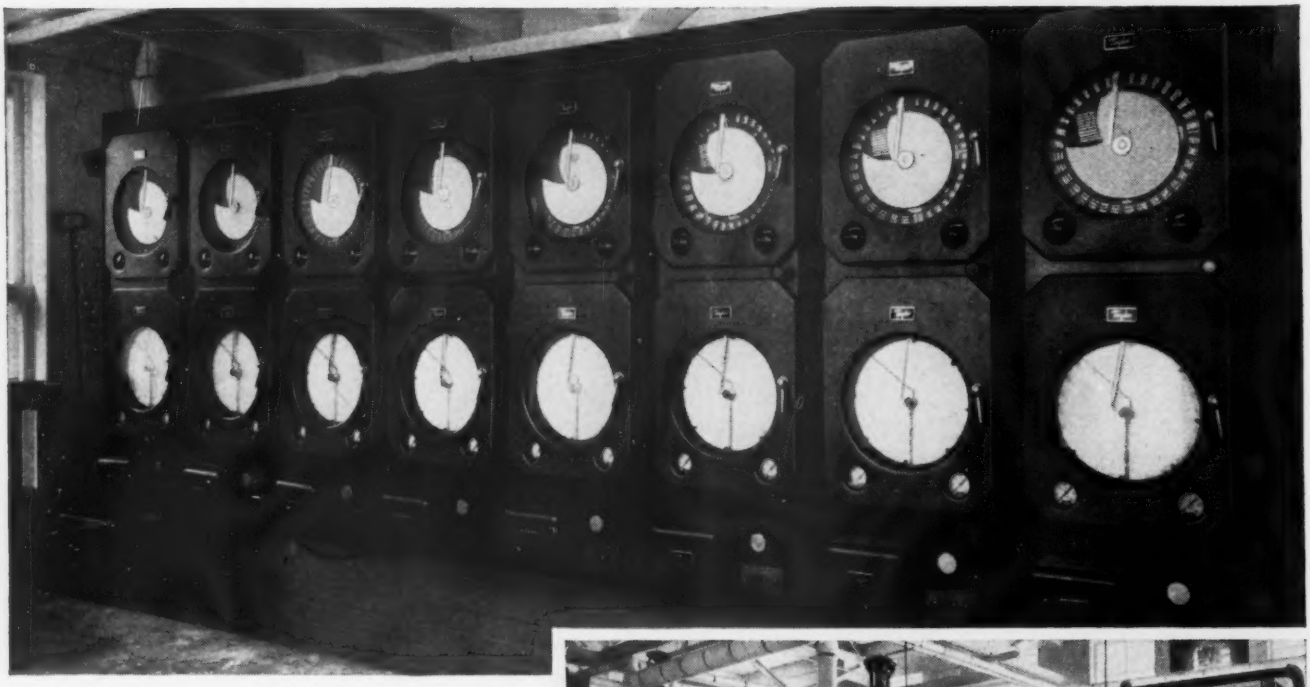
Renewable Composition Disc Bronze Globe "Family"

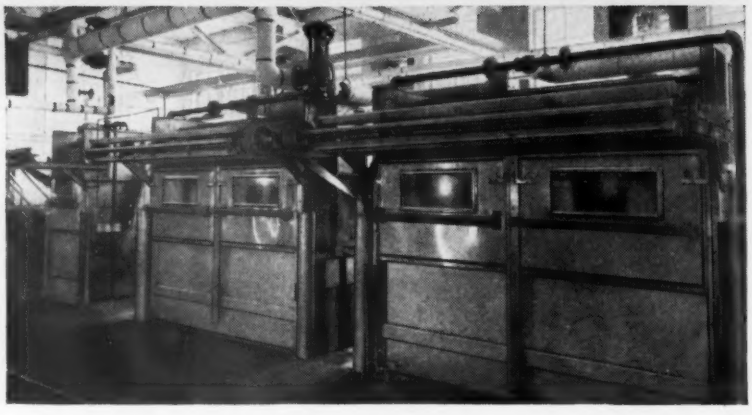

Change body for Globe or Angle.
Change disc nut for throttling — also spindle for Stop and Check.
Change trim, add spring as desired, for Lift Check.
150 lbs. Steam 300 lbs. O.W.G
Change spindle for Quick Opening.

The Fig. 106-A "family" permits valve combinations for 90% of industrial needs through interchangeability of parts. With only four body types and a handful of parts, 18 different types of valves can be assembled. Equipped with the slip-on stay-on disc holder, Fig. 106-A can be restored to good-as-new service in a few minutes.

ONE OF OVER 600 EXTRA VALUE VALVES MADE BY JENKINS VALVE SPECIALISTS

AGAIN and AGAIN and AGAIN!





WHAT, again? Yes, this battery of Taylor Fulscope Time Schedule Temperature Controllers delivers the same high quality every single time. From a wall in the boss dyer's office at the Gonic Manufacturing Company, Gonic, N. H., it *automatically* controls time and temperature on eight Riggs & Lombard piece dye machines.

When the operator signals that the kettles are loaded, the boss dyer can press a button and leave the rest to Taylor Accuracy. If he should want an add period, all he does is press the button again.

Temperature is controlled to a degree not previously thought possible on this type of machine, and timing is equally precise. You can change the timing with the same cam merely by speeding up or slowing down the cam movement.

Taylor Time Schedule Controllers not only cut operating costs by saving you money on steam and dyestuffs but also assure uniform dyeing conditions.

This piece dye control system is only one of many ways you can "beat rising costs with Taylor Accuracy". Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

Taylor Instruments

MEAN

ACCURACY FIRST

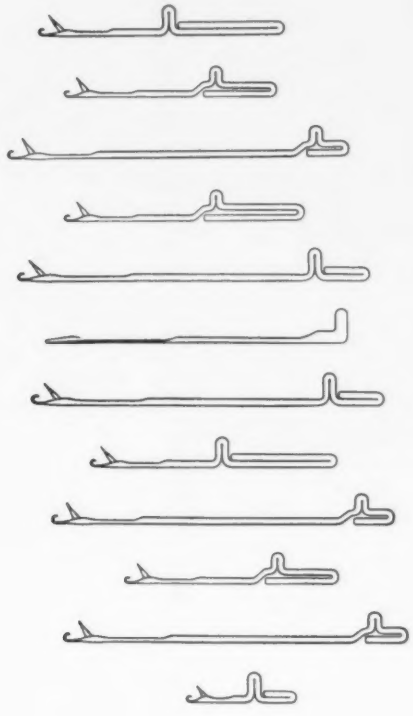
IN HOME AND INDUSTRY

know your NEEDLES *for* MEN'S UNDERWEAR

DID YOU KNOW that there are more than 10,000 different type needles of TORRINGTON manufacture—needles for every type of knitting?

It's true. The needles illustrated below are among those commonly used by manufacturers to improve quality and cut knitting costs of men's underwear. And there are especially designed, machine-controlled Torrington Needles to fill exactly *your* knitting requirements, no matter what they may be. Make TORRINGTON *your* needle headquarters, too.

... Due to the present high demand for Torrington Needles, some of the Needle Types illustrated may not be available for immediate shipment from stock.



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Branches: New York • Philadelphia • Chicago • Greensboro, N. C. • Boston St. Louis • Toronto, Canada • *Pacific Coast Representative:* E. G. Paules, 1762 West Vernon Avenue, Los Angeles 37, Calif.

There's a **TORRINGTON** **LATCH NEEDLE** *for every type of Knitting!*

Designed for versatility...

Torrington Needle Bearings can be adapted to many applications with little modification of product design and minimum re-tooling. This feature enables Needle Bearings

To meet your specific needs...

quickly and at low change-over cost.

In addition, Needle Bearings contribute to lower costs in design, fabrication, assembly and maintenance. They help promote compact, light-weight designs... can be housed in a plain bore without spacers or retainers... are installed by a simple arbor press operation... and operate at high efficiency with low maintenance cost.

To discover how easily the many advantages of Needle Bearings can be secured for your product, write for our Catalog #32, or consult our engineering staff on your specific friction problem.

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—Model of Efficiency— Anchors Looms and Other Machines with . . .

UNISORB
without BOLTS OR LAG SCREWS

Deering, Milliken's Excelsior Mills at Clemson, S. C., are a model of modern efficiency. It is only natural, therefore, that looms and other machinery would be anchored in the most modern and efficient manner. The satisfaction that Unisorb has given is indicated by its continuing use in other mills under this company's ownership.

This modern method of anchoring is simple, quick and inexpensive. A special cement binds the Unisorb to the machine feet and the floor — permanent set absolutely prevents any riding.

By controlling vibration, Unisorb reduces shutdown hours — saves on machine repairs and building maintenance. By providing quieter surroundings, it increases efficiency — helps toward greater production.

Send for sample and complete specifications.

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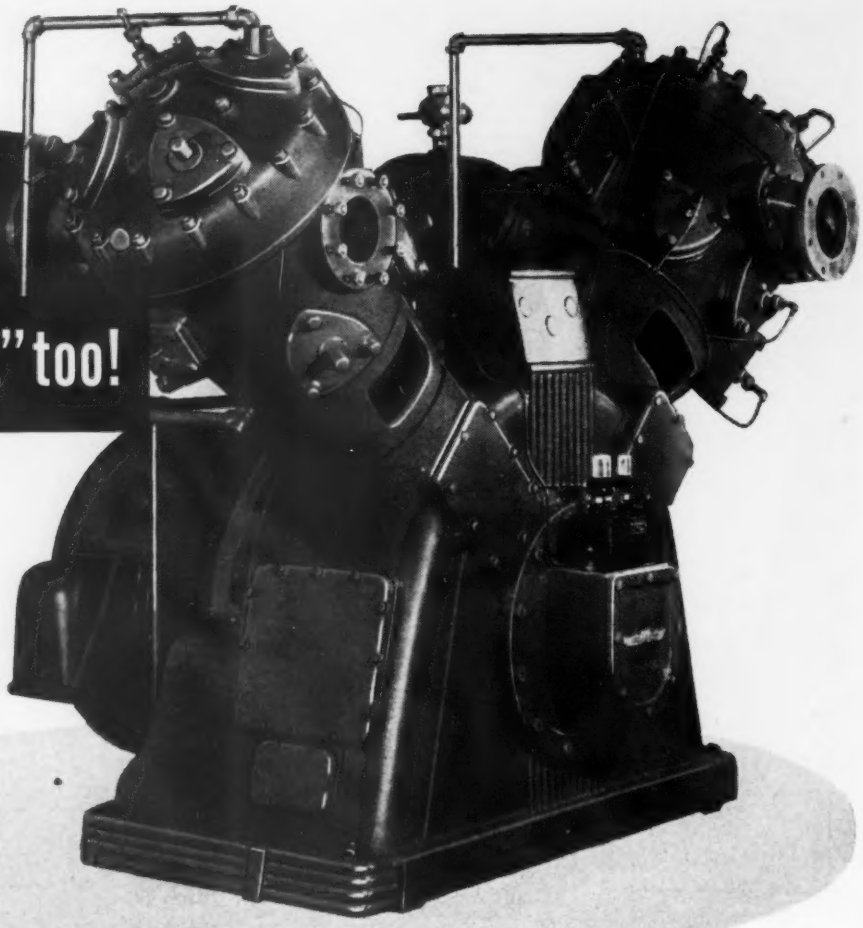
It's a "Cost-Compressor," too!



The Worthington YC Saves You Money In Every Detail of Installation and Operation

Installation Savings

- Takes ½ the building space and ¼ the foundation space of same capacity horizontals.
- Comes assembled; needs no alignment, special clamps or erecting engineer.
- Needs only power and air connections to put it to work.
- Quickly and easily installed, even where subsoil is poor.
- Lighter weight reduces transportation charges.

Operation Savings

- Perfectly balanced Y-frame for higher rpm cuts motor costs.
- Specially designed bearings and rods eliminate ordinary wedge-adjustments.
- Outside valves, large openings, easy-to-reach parts allow quick inspection.
- Spare parts smaller and less expensive.
- Worthington Feather* Valves are the lightest, most efficient, most economical ever made.

Another big advantage of YC's is their adaptability to many drives — Multi-V-Drive, coupled drive from explosion-proof motor, steam turbine, or practically any type of rotative power. Still another is the instantly responsive, power-saving, 3- and 5-step *variable capacity control* . . . From start to finish you'll pay less for air with these rugged, long-lived, cooler and smoother running Worthington YC Compressors.

Write for Literature

Bulletin L-667-B1A will give you the whole story . . . and further proof that *there's more worth in Worthington. Worthington Pump and Machinery Corporation, Compressor Division, Buffalo, New York.*

WORTHINGTON

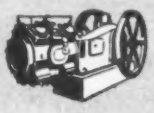
NO OTHER COMPRESSOR WILL OUTPERFORM A WORTHINGTON

*Reg. U. S. Pat. Off.

K7-2

Y-Types

Vertical

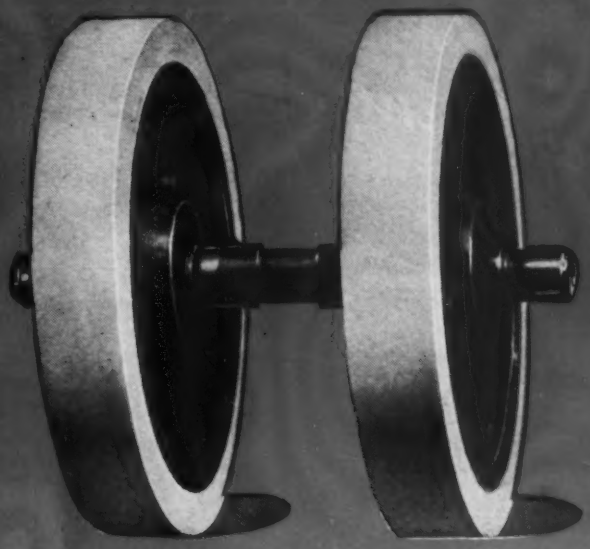
Horizontal 

Portable

Radial

Gas-Engine Compressors

SUPERIOR DRAFTING PROPERTIES!



PLUS

EIGHT Additional Reasons Why You Should Standardize on Dayco Woolen and Worsted Cots

Dayco Woolen and Worsted Cots last at least 12 times longer than others.

They simplify production schedules. More production of wanted numbers.

Any combination of wool, rayon and mohair can be run equally well with a minimum of lint.

Much less matching up required since they produce highest yarn uniformity.

Replacement kept at minimum.

They save up to two thirds of the time required in applying arbors.

Save time and labor formerly spent re-adjusting pressures after shutdowns.

They reduce your power requirements.

Records continue to come in—*Mill Proved records*—which show that Dayco Woolen and Worsted Cots step up production of uniform yarn in every mill where they are installed. These records prove that Daycos show no signs of grooving or other deterioration after years of service and that they still maintain their especially engineered coefficient of friction and resiliency. Each year, Daycos remain in service, they establish new records. Today, they're *outlasting* other types of cots *12 times* while *producing more uniform yarn*. This means Dayco-equipped mills enjoy lower production costs and increased efficiencies. Write today for full information to Dayton Rubber, Dayton, Ohio, or

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Main Sales Office: Woodside Bldg., Greenville, S. C.
Factory: Waynesville, N. C.

THESE *Mill Proved* PRODUCTS WILL SAVE YOU TIME, MONEY AND MATERIALS

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H&B Opening

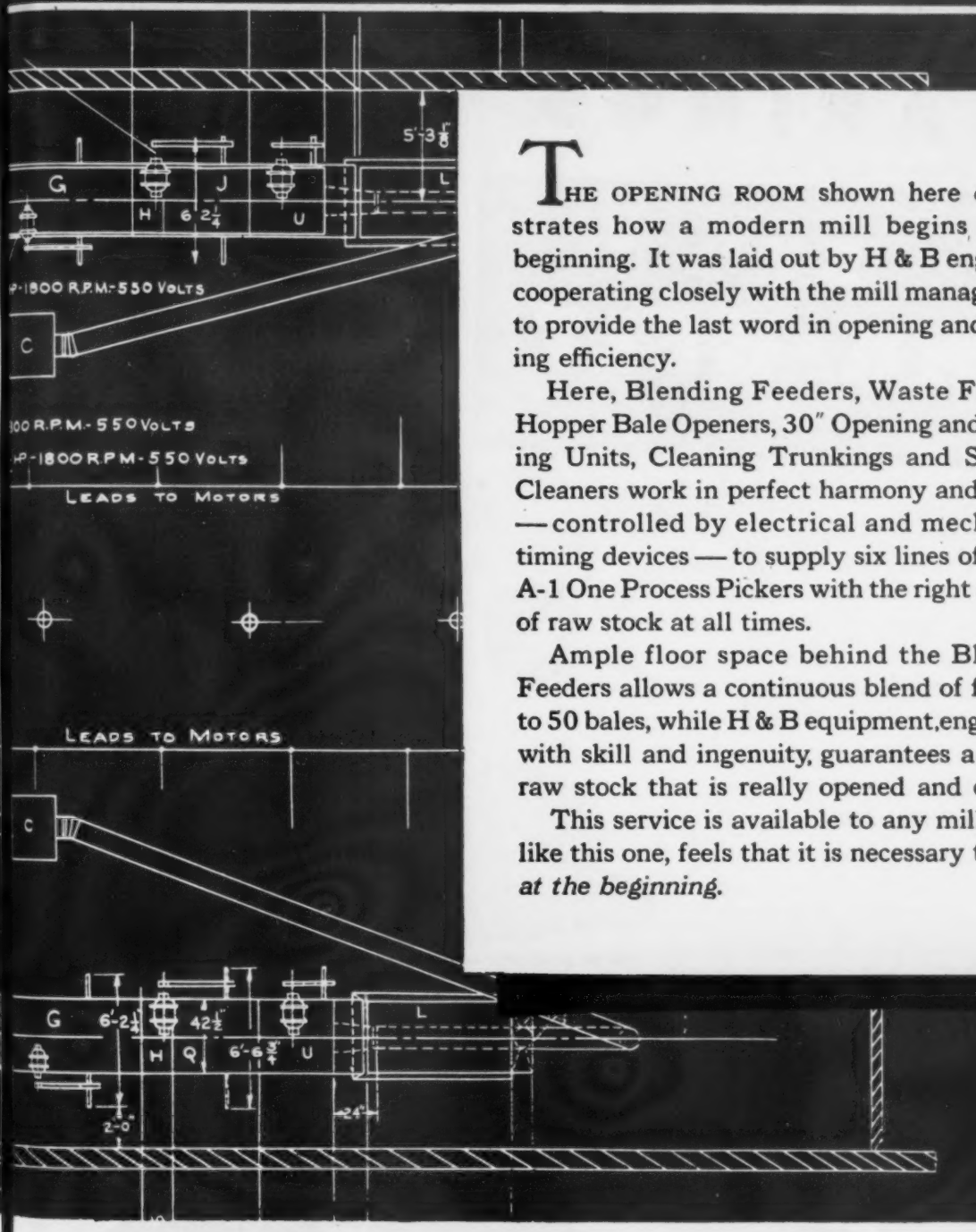
Begin at the Beginning!

H&B AMERICAN

Builders of Modern

FACTORY, EXECUTIVE OFFICES AND EXPORT

Room Machinery



THE OPENING ROOM shown here demonstrates how a modern mill begins at the beginning. It was laid out by H & B engineers, cooperating closely with the mill management, to provide the last word in opening and cleaning efficiency.

Here, Blending Feeders, Waste Feeders, Hopper Bale Openers, 30" Opening and Cleaning Units, Cleaning Trunkings and Superior Cleaners work in perfect harmony and unison — controlled by electrical and mechanical timing devices — to supply six lines of H & B A-1 One Process Pickers with the right amount of raw stock at all times.

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This service is available to any mill which, like this one, feels that it is necessary to *begin at the beginning.*

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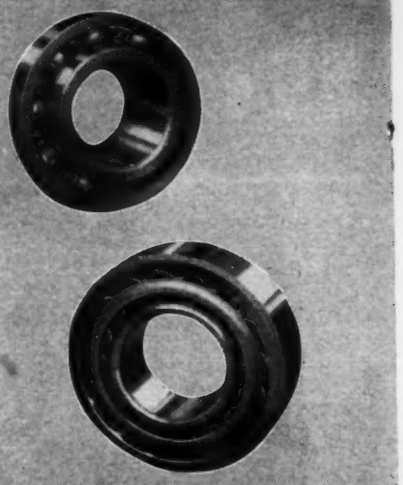
BALL AND ROLLER BEARINGS

BY LINK-BELT



● In countless applications, Link-Belt Ball and Roller Bearings are protecting costly equipment, by their well-known ability to take either radial or thrust loads, or a combination of both, and their self-aligning features.

Available in unmounted sizes or mounted units, pillow blocks, cartridge, flanged, hanger and take-up units. Send for catalogs Nos. 2094 and 2095.

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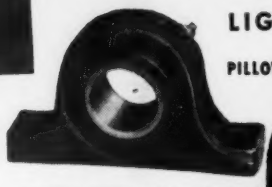
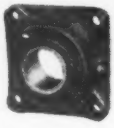
LIGHT SERIES 200



PILLOW BLOCK-SOLID HOUSING

PILLOW BLOCK-SPLIT HOUSING



FLANGE UNIT

TAKE-UP UNIT

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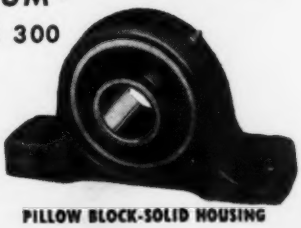

PILLOW BLOCK-SOLID HOUSING

FLANGE UNIT

TAKE-UP UNIT

CARTRIDGE UNIT

FLANGE CARTRIDGE UNIT

ROLLER BEARING PILLOW BLOCKS • *HEAVY AND EXTRA HEAVY*

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HEAVY SERIES 6800
EXTRA HEAVY SERIES 6900

•

PRESS FIT ON SHAFT
HEAVY SERIES 7800
EXTRA HEAVY SERIES 7900

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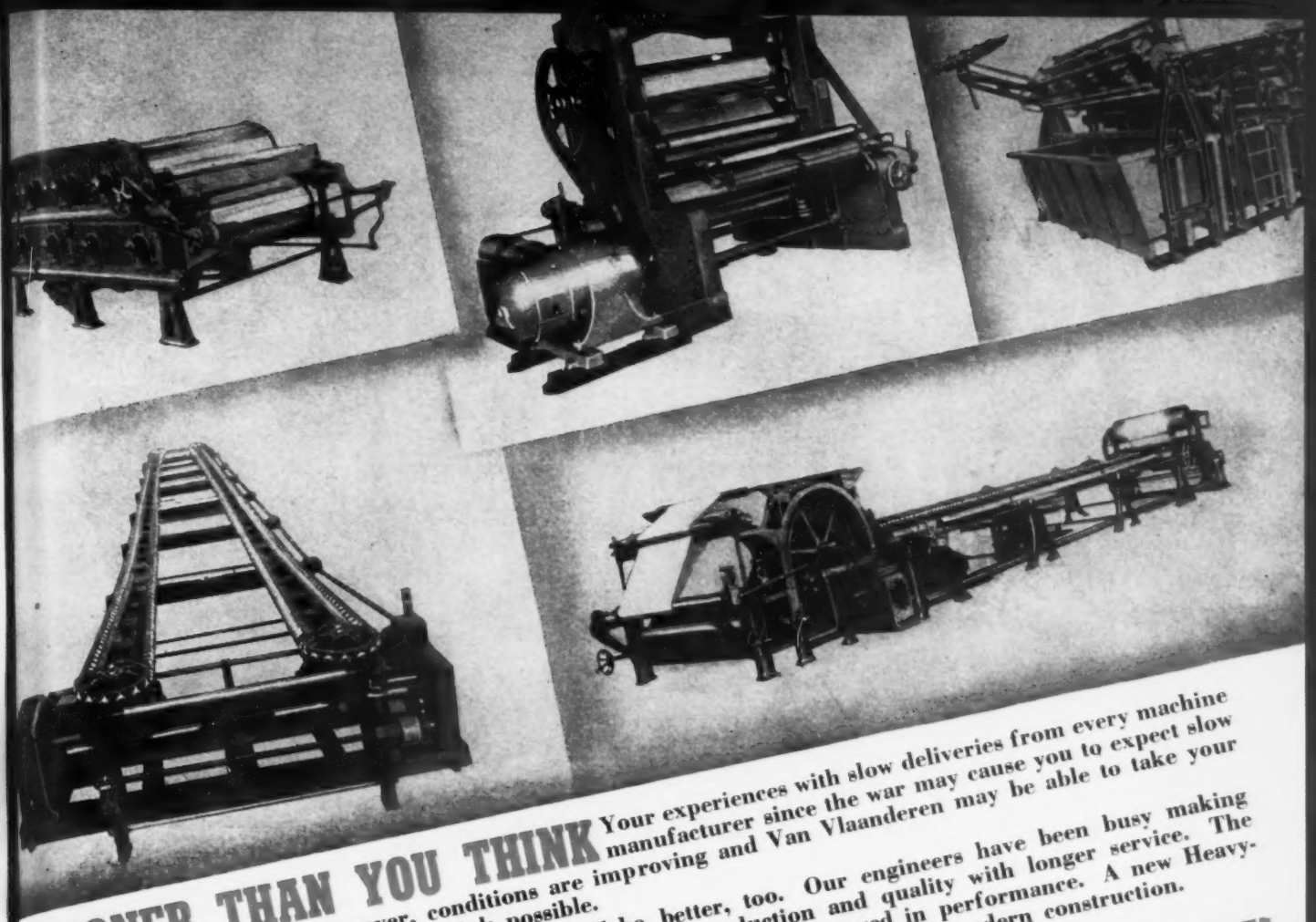

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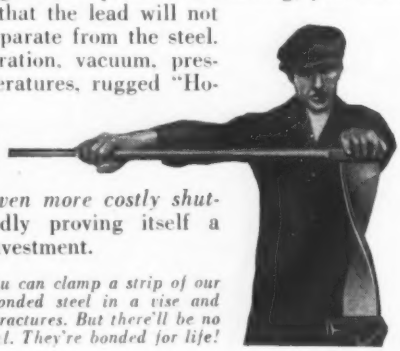
1 An Inseparable Lead Bond! National Lead's "Homogeneous" Lead-lined Equipment gives you just *that!* The lead lining or covering is permanently bonded to the steel, copper or brass of which the apparatus is constructed.

With the "Homogeneous" process of bonding, you have positive assurance that the lead will not creep, buckle or separate from the steel. Despite shock, vibration, vacuum, pressure or high temperatures, rugged "Homogeneous" equipment goes on doing its job . . . cutting down costly replacements *(and even more costly shutdowns)* . . . repeatedly proving itself a sound, profitable investment.

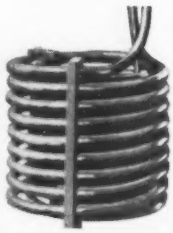


You can't part 'em. *You can clamp a strip of our "Homogeneous" lead-bonded steel in a vise and twist it until the steel fractures. But there'll be no parting of lead and steel. They're bonded for life!*

2 Durability at High Temperatures! Since no tin or tin-lead solder is used in the bonding of "Homogeneous" equipment, you can safely employ this equipment at temperatures closely approaching the melting point of lead itself (620° F.).

But that's not all! The "Homogeneous" bond holds fast even when subjected to rapid changes in temperature.

Most of the "Homogeneous" processing equipment we produce is designed for service at elevated temperatures. This includes not only lead-lined tanks, autoclaves and the like, but also lead-covered agitators, propellers and mixing devices of many different types.



For heating or cooling, *you'll find "Homogeneous" lead-covered copper coils at work in many industries.*

3 Designed to Your Order! National Lead's "Homogeneous" Lead-lined or Lead-covered Equipment is individually fabricated to your specifications. That is because acid-handling problems differ. Efficient, cost-saving equipment must be specially designed to meet given conditions.

Our Engineering Department offers you its full co-operation in the control of acid corrosion. We will be pleased to offer suggestions on the most economical and satisfactory way for you to utilize the protection of lead.

Specify "Homogeneous" Lead-lined or Lead-covered protection for...

Acid Car and Trailer Tanks
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Propellers
Heating and Cooling Coils

No Matter What Your Acid-Handling Problem...

Go "National" for Lead

National Lead is ready to consult with you and supply any type of lead pipe . . . valves . . . sheet . . . lead-lined or lead-covered equipment . . . even complete acid recovery plants. And behind every National Lead product . . . every National Lead recommendation . . . are years of experience and many important installations in every field handling corrosive liquids and gases.

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HERE'S PROOF—

that it PAYS to use GAS...

for *Textile Processing*

Every one of these practical experiences in profitable textile-mill operation is a fundamental reason for your consideration of production-line processing with GAS and Modern Gas Equipment:

INCREASED PRODUCTION

The production and finishing of piece goods was increased more than 100% and the record maintained over two-year test period with GAS and Modern Gas Equipment.—*New Jersey Dyer and Finisher.*

IMPROVED TEXTILES

Processing with GAS improves the fabric because the rapid drying in slashers prevents flattening of the yarn; in dyeing the color fastness is assured.—*Eastern Mill Executive.*

CONTROLLED PROCESSING

GAS and Gas Equipment are so flexible and so readily controlled that simple automatic devices maintain the proper temperature with less than 5° variation for curing ovens and print towers for processing all types of fabrics.—*New York State Textile Company.*

OPERATING ECONOMY

Increase of 25% in operating speeds on tenter-palmer unit, plus savings in steam and labor costs, amortized the cost of Modern Gas Equipment.—*Synthetic Fabric Produce., Virginia.*

THOROUGH DRYING

GAS acts rapidly and thoroughly, drying at production speeds without weakening the fabric by scorching. The combination of accurately controlled GAS and variable-speed equipment facilitates processing of all weights of cloth.—*New Jersey Processor.*

Statements of textile producers furnished by Carbomatic Corporation, New York City, Manufacturers of Infra-Red Ray Gas Generators for textile processing.

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THE TREND IS TO GAS

FOR ALL INDUSTRIAL HEATING

AMERICAN GAS ASSOCIATION

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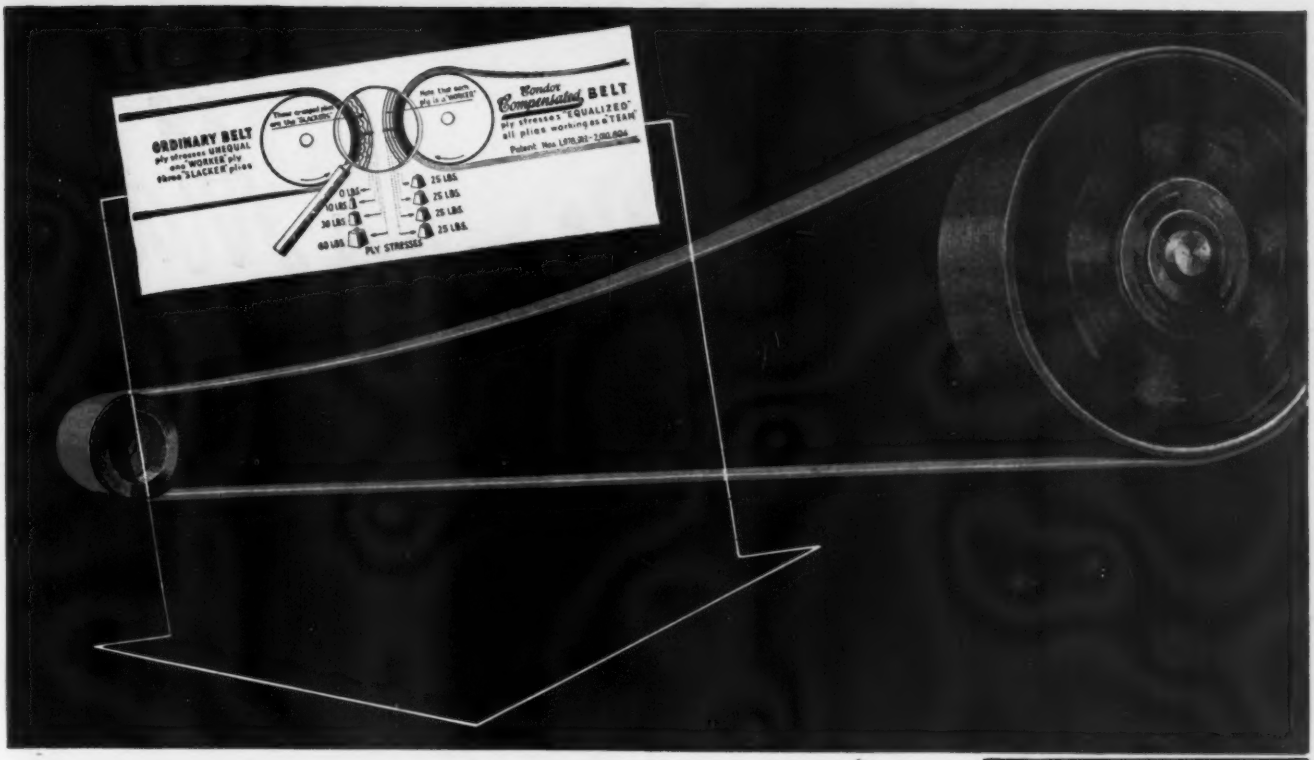
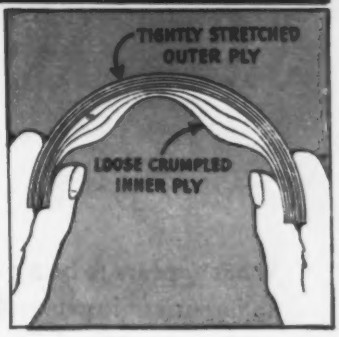


MANHATTAN'S *Condor* COMPENSATION PRINCIPLE

no shirkers . . . every ply a worker



It's what happens to a belt when rounding the pulleys that mainly determines the life of the belt. The simple experiment shown here, with cards representing plies of a rubber transmission belt, graphically demonstrates the difference in stress between plies when flexing over pulley circumferences.

EQUALIZED PLY STRESSES IN *Condor* COMPENSATED BELTS

The Compensation Principle developed by Manhattan engineers *has solved the problem* of the top plies being overworked while the bottom plies just "go along for the ride." Ply stresses are *Equalized* in the manufacture of Condor Compensated belts, so that all Strength Members *pull together* at the point of power delivery.

Among nine proved advantages of the Compensated construction are elimination of outside ply rupture and longer fastener life, freedom from ply separation and less wear on the driving surface. You also have a greater overload capacity, greater margin of safety, and consequently longer service. Send for Bulletin 6808 F, packed with detailed data.

A SINGLE SOURCE FOR A COMPLETE BELTING LINE

Manhattan offers a range of four tensions in driving surfaces on rubber transmission belts. Also Endless Cord, Non-Spark, Oil-Proof and Acid-Proof constructions. Belts can be factory-made endless or field vulcanized by the Condor-Weld method. All Manhattan endless belts have the patented Extensible-Tip outer-ply splice which prolongs belt life considerably. Literature on request.

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RAYBESTOS-MANHATTAN INC.

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What appears to be a glass saxophone in the hands of a Sinclair Laboratory technician is in reality an important instrument used in protecting you against lubricants with low resistance to oxidation.

It's part of Sinclair's apparatus to determine oxidation rate of both non-additive and additive type lubricants. It is used constantly by Sinclair in Research and Refinery Control to assure you of maximum lubricant life without formation of harmful corrosive acids, varnish or carbon deposits on working surfaces.

Resistance to Oxidation is a prime requisite of all good lubricants. Sinclair's "Young Man With A Horn" — and others equally painstaking — stand guard constantly at Sinclair Laboratories to assure you that any Sinclair Lubricant you buy has the very highest degree of quality necessary for maximum operating efficiency.

Sinclair Textile Lubricants

LILY WHITE OILS
For Spindles

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REPUBLIC Enduro STAINLESS STEEL

Protects Sheer Fabrics

Smooth, flaw-free surfaces are a "must" requirement for equipment that comes in contact with rayon, nylon and other sheer fabrics. That's why more and more equipment designers and buyers are specifying Republic ENDURO Stainless Steel for their new processing, bleaching, dyeing and drying equipment.

Smooth stainless steel forms insure freedom from runs, snags or pulled threads in this modern hosiery drying machine. Other textile applications for lustrous ENDURO Stainless Steel include agitators, dry cans, fulling machines, reels, and sizing, weaving and spinning equipment.

ENDURO protects sheer fabrics against the hazard of pulled threads, because its surface is hard and smooth, highly resistant to corrosion and has nothing to crack, chip or wear off.

This is but one of the *plus* features of long-lasting ENDURO Stainless Steel. For the complete story about ENDURO's many money-saving advantages, and applications in the textile industry, write for a *free* copy of Booklet No. 444.

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Republic ENDURO STAINLESS STEEL

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CAN DRYERS
ROLLS
WELDED TUBING
KETTLES
TANKS
CUSTOM BUILT EQUIPMENT
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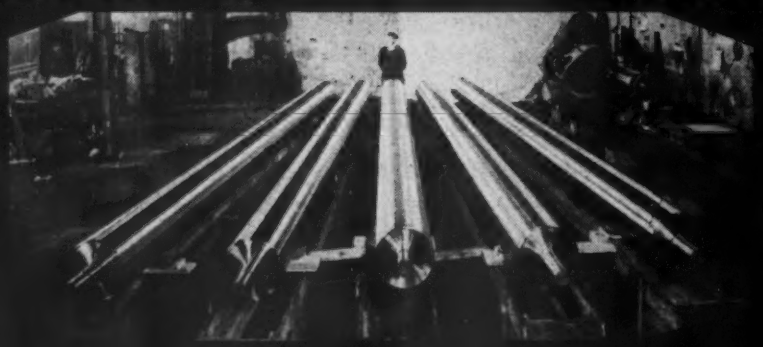
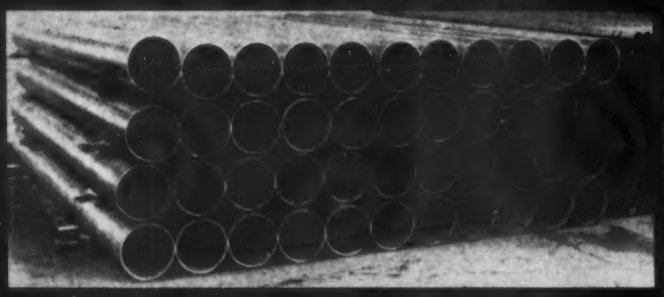
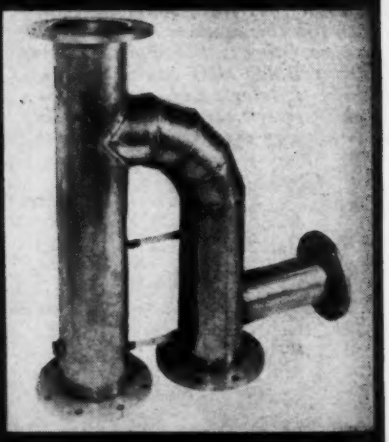
Where pressures are a factor we construct in accordance with the A.S.M.E. code.



Our experience covers all types of stainless steel. Consult us on your corrosion problems.

Stainless Rolls





Left—Custom Built Stainless Equipment
Above—Welded Stainless Tubing
Right—Fabricated Stainless Piping

Engineers—Designers—and Builders of Back Dryers, Can Dryers, Kiers, Kettles, etc.

UNITED STEEL OF AMERICA, INC.

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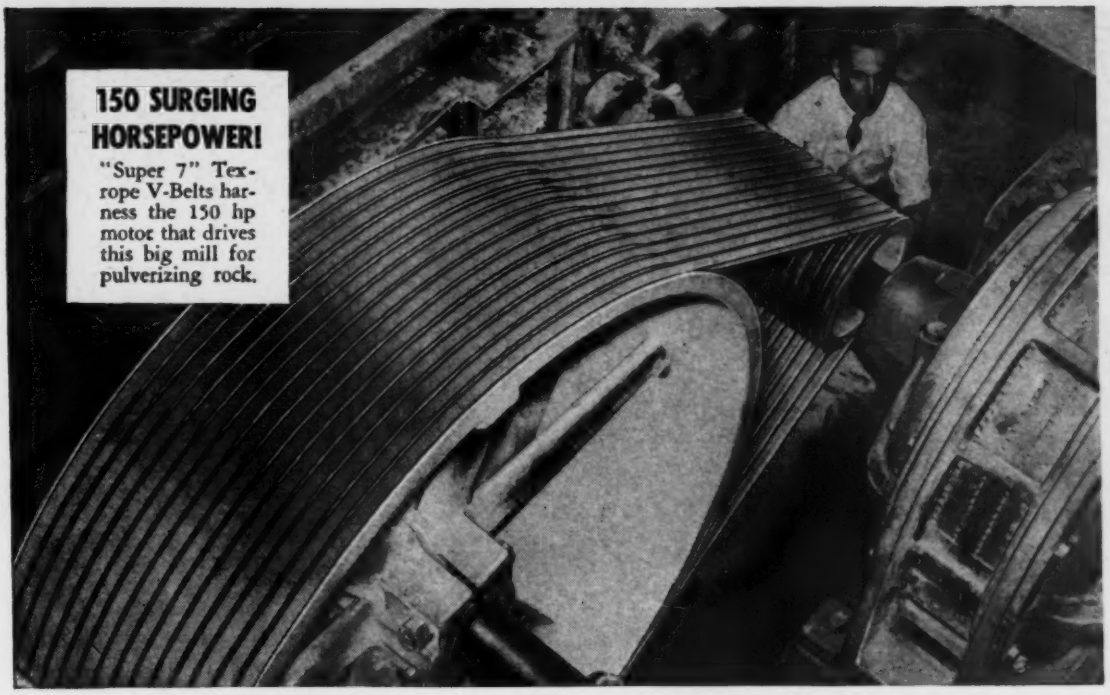
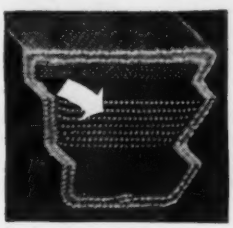


150 SURGING HORSEPOWER!
"Super 7" Texrope V-Belts harness the 150 hp motor that drives this big mill for pulverizing rock.

PULLING POWER

. . . one of the 7 Great Features in "Super 7" Texrope V-Belts!



1. STRONGER CORDS give "Super 7" Texrope V-Belts their great pulling power. These long-fibre, hard-twisted cotton cords have the strength of high-test fish lines. Laid row on row and imbedded in heat resistant rubber compound, they provide a powerful load-carrying element.

2. TOUGHER COVER. Rugged duplex construction protects the carcass of "Super 7" belts from wear and dirt.

3. HEAT RESISTANCE. *All* "Super 7" V-Belts are designed and built to give high resistance to heat.

4. SHOCK ABSORBING. "Super 7" construction combines great strength with the degree of resiliency necessary for long belt life and smooth power transmission.

5. PRECISION CURED in pressure molds to assure accurate section and perfect bonding of cords, cover and cushion.

6. ACCURATELY MATCHED. Every belt weighed, measured and carefully inspected before being sized and packed.

7. ENGINEERING LEADERSHIP. "Super 7" Texrope V-Belts represent 27 years of research and experience — by Allis-Chalmers, originator of the Multiple V-Belt Drive.

• • •

There are FIVE types of "Super 7" Texrope V-Belts, to meet every operating requirement: *Standard — Heat Resisting — Oil Resisting — Oil Proof* — and *Static Resisting*. Call your Allis-Chalmers office or dealer. ALLIS-CHALMERS, MILWAUKEE 1, WIS.

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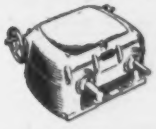
TEXROPE .. Greatest Name in V-Belt Drives

"Super 7" V-BELTS
Five Types — Sizes to suit every power transmission job.

Texsteel, Texdrive, "Magic-Grip"
— sheaves in a full range of sizes, grooves.

"Vari-Pitch" SHEAVES
Exact variations in speed, stationery or motion control.



SPEED CHANGERS
Speed variations up to 375% at the turn of a crank.

ENGINEERING
Finest V-Belt engineering talent in the world—at your call.

TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

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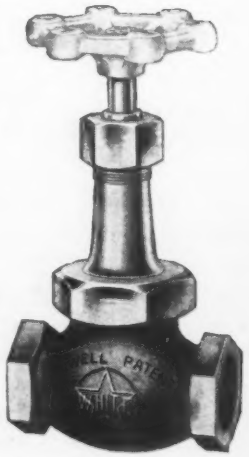
For assured flow control, the valve must suit the service

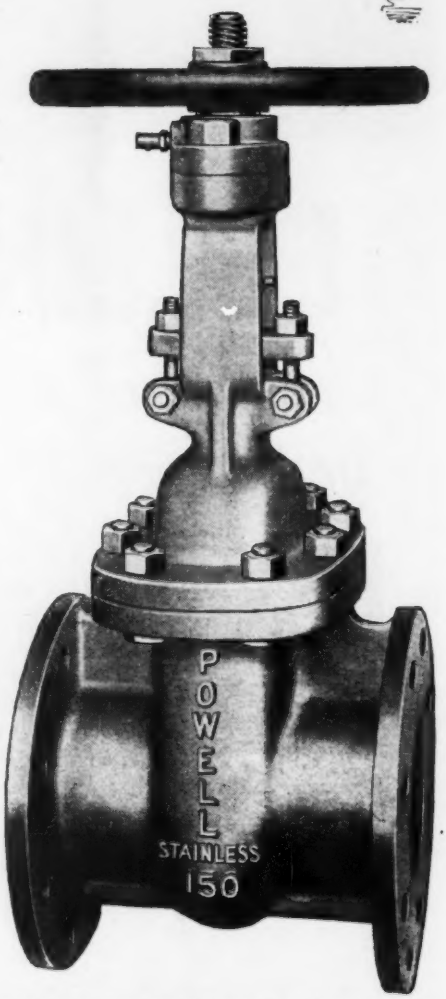
You don't have to be an Isaac Walton to know what's wrong with these fishing pictures. Silly misapplications of equipment, aren't they? But no sillier than using *valves* in services for which they were not specifically designed.

Through more than a hundred years of making valves—and valves only—Powell Engineers have been designing the *right* valves to suit the specific requirements of every existing industrial flow control service. Today, the Powell Line includes Bronze, Iron and Steel Valves of every necessary type, design, size and pressure. And, for corrosion resistance, Powell makes a notably complete line in the widest range of pure metals and special alloys ever used in making valves.

That's why, *for assured performance,* it pays to consult Powell.



Small size 200-pound Bronze Globe Valve for steam, oil, water or gas. For assured, long-life performance it has a renewable, specially heat treated stainless steel seat and a regrindable, renewable, wear-resisting "Powellium" nickel-bronze disc.



New, standard 150-pound Stainless Steel Gate Valve with bolted flanged yoke-bonnet, outside screw rising stem and taper wedge solid disc. This is one of Powell's many special designs for corrosion resistant valves which are available not only in stainless steels but also in many other alloys and pure metals.

The Wm. Powell Co.
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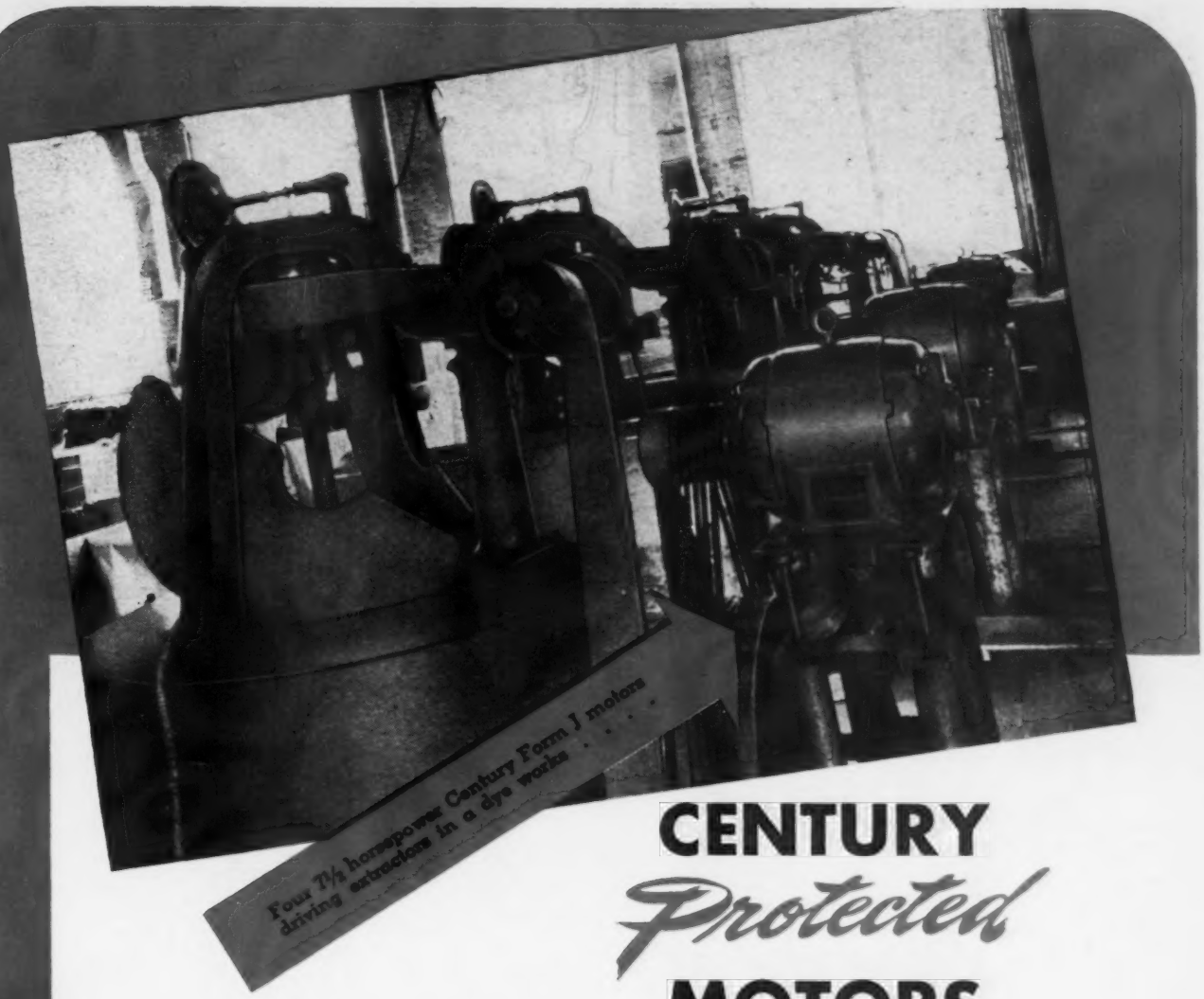

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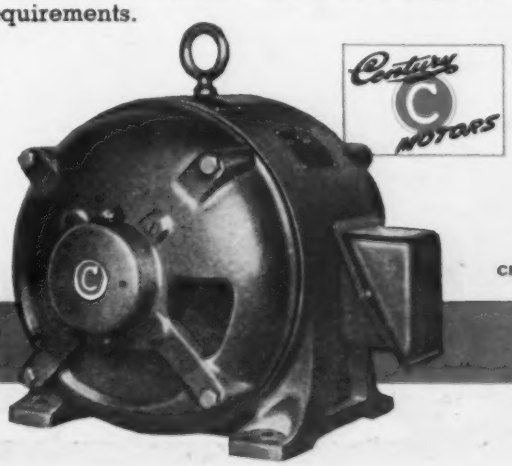
INSULATED TO RESIST MOIST SURROUNDINGS • • THEY ASSURE LONG LIFE ON EXTRACTORS — WASHERS — DYERS — PUMPS • •

The vital operating parts of Century protected Form J drip proof open rated motors are protected from falling objects and dripping liquids because the upper half of the motor frame is closed. Nothing can fall inside the motor frame.

To give insulation and windings protection against damp atmospheres, Century motor windings are thoroughly saturated with a compound that is highly moisture resistant, then baked until dry and hard.

Century builds a complete line of electric motors and generators, fractional and integral horsepower, in the popular sizes to meet the requirements of industrial production, processing, commercial and home needs.

Specify Century for all your electric power requirements.



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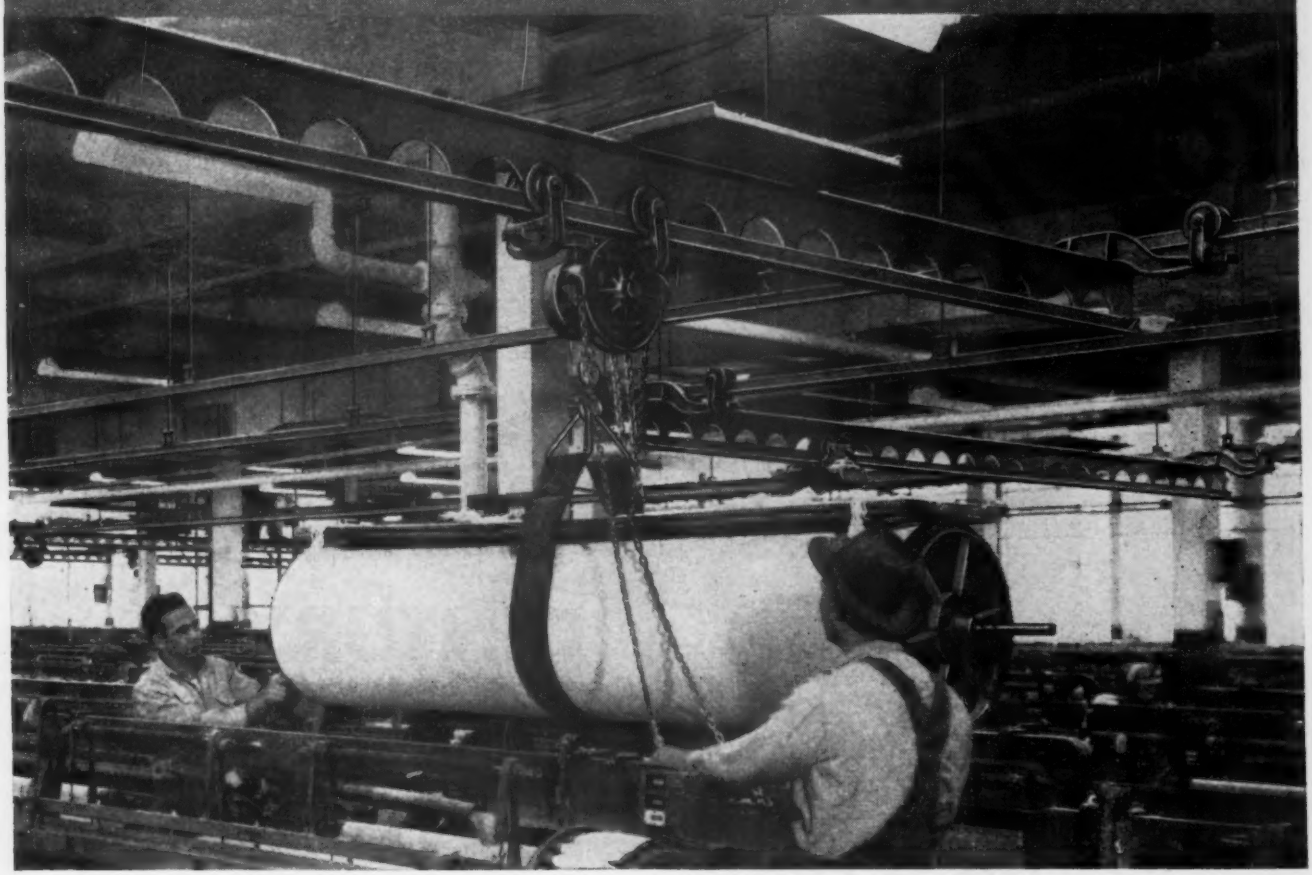
The Fast, Safe, Efficient Way to

HANDLE 24" AND 30" BEAMS IN THE WEAVE ROOM



Because of large economies resulting, textile mills are rapidly going from the old 18" standard to 24" and 30" diameter beams. This means heavy beams with harness — often running 1000 to 1500 pounds — far too cumbersome to handle manually with old-time floor dollies. It also means sizes larger than shaft alleys in most weave rooms will accommodate.

The only natural and obvious solution to the handling of such large beams in the weave room is the use of simple, inexpensive Cleveland Tramrail cranes, or track and switch systems. Thereby, heavy beams can be easily moved overhead to any loom by one man. Aisle widths need not be changed. The same crane that places a beam in a loom removes and transports the cloth.

Efficient storage racks can be used with Cleveland Tramrail systems, permitting orderly storage of beams, three or more high. Any beam can be selected without disturbing others and delivered directly to any loom without rehandling.

Safety is improved tremendously when Cleveland Tramrail is provided. Hernias become practically non-existent. Injury to beams is greatly reduced. Floor damage is minimized.

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THE CLEVELAND CRANE & ENGINEERING CO.
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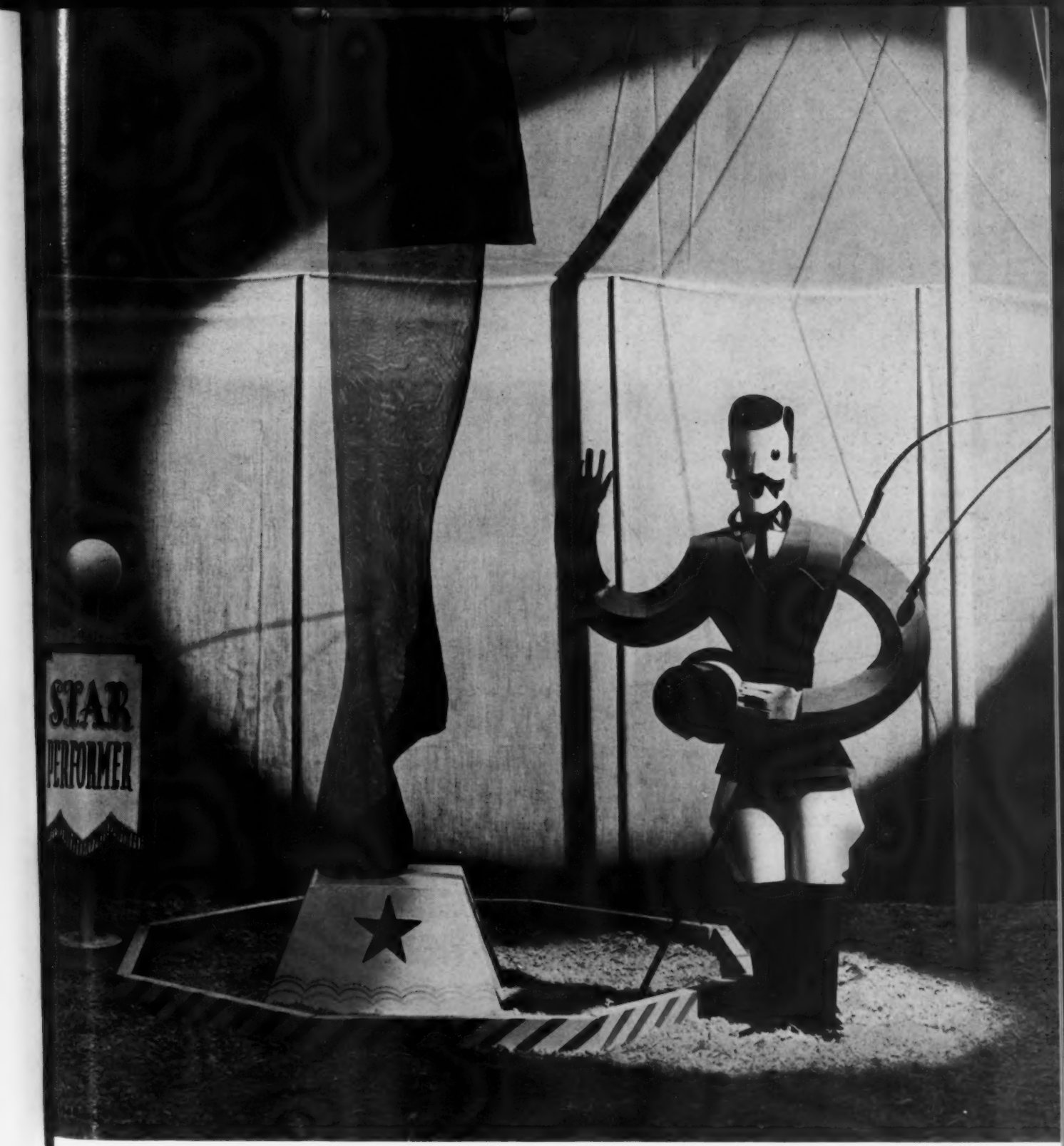
CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT



Star Performer . . . Sheer, full-fashioned stockings take the center of the fashion stage. To knit flawless hosiery fabrics, only the finest needles can be used. That is why TMW Needles are "Fixture Drawn."* This exclusive TMW patented process holds the needles straight and true . . . assures you of increased profits through high quality production. Let us put your needle bars in shape for faster, more accurate, more profitable knitting.

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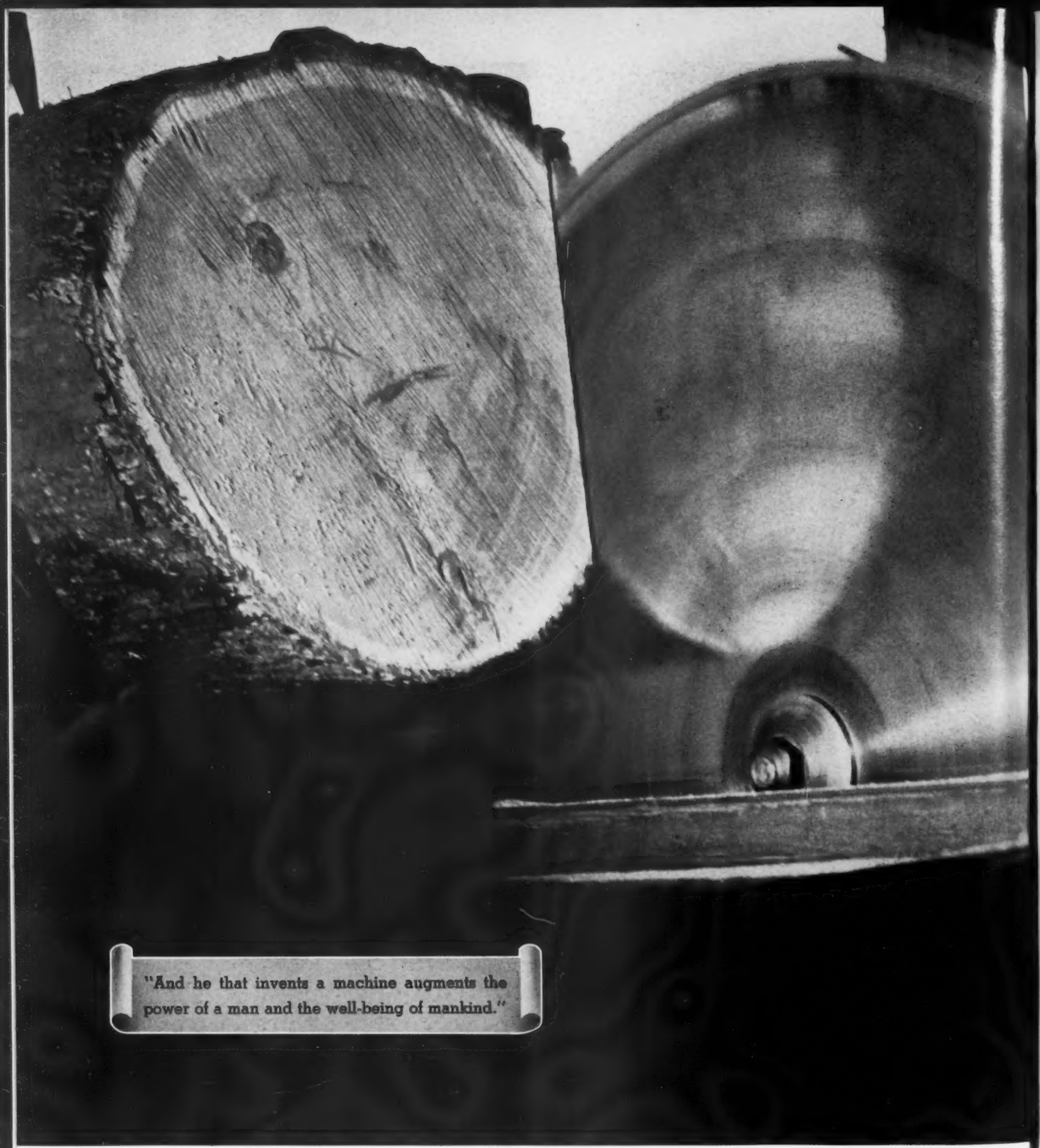
TEXTILE MACHINE WORKS • READING, PA.



High Speed Power Saw

Modern machines have made Americans the world's most efficient workers, and with every increase in efficiency, the worker has increased his share of the good things of life and the time in which to enjoy them. In Full-Fashioned Knitting, the READING Machine is the machine that insures the high standard of living of the thousands of skilled workers in the industry.

TEXTILE MACHINE WORKS · READING, PA.

THESE UNBRAKO Self-Lockers can be used OVER AND OVER AGAIN

Reg. U. S. Pat. Off.

PAT'D AND PATS. PEND.

Their knurled cup points make them Self-Lockers because the points dig in and stay tight—even when subjected to the most chattering vibration. Yet, this "Unbrako" Screw can be backed out with a wrench and used OVER and OVER AGAIN. That's why millions and millions of these dependable "Unbrako" Socket Set Screws with the Knurled Cup Points are used in industry. Write for the "Unbrako" Catalog . . . it contains complete information about these and other "Unbrako" Screw Products.

These "Unbrako" Screw Products are available in sizes ranging from #4 to 1-1/2" in diameter and in a full range of lengths.

"Unbrako" and "Hallowell" Products are sold entirely through distributors.

Knurling of Socket Screws originated with "Unbrako" in 1934.

KITS PATS. PEND.

You can't screw socket screws in or out without a hex socket wrench, so why not get our No. 25 or No. 50 "Hallowell" Hollow Handle Key Kit which contains most all hex bits.

"Unbrako" Socket Head Cap Screws with the knurled head save assembly time because the knurling provides a slip- and fumble-proof grip—though the fingers and head be ever so oily, therefore, they can be screwed in faster and farther before it becomes necessary to use a wrench.

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PAT'D AND PATS. PEND.

The knurled threads of this "Unbrako" Socket Set Screw makes it a Self-Locker, too for Flat, Oval, Cone, 1/2 and full dog points.

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You Can SEE That

It's ONLY the SIDE of a V-Belt

That Grips the Pulley and *Gets the Wear!*

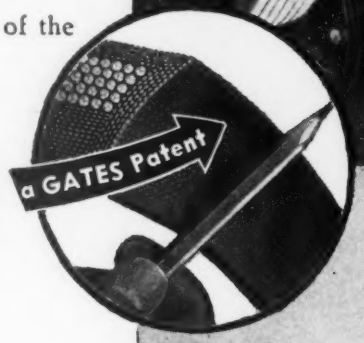
DIAGRAM OF BELT IN PULLEY GROOVE

Look at a V-Belt in its sheave and you see at once that the *sides* of the belt do all the gripping on the pulley and get all the wear against the sheave-groove wall.

Notice, too—it's the *sides* that pick up all the power delivered by the driver pulley. The sides *transmit* that power to the *belt as a whole*. And then, once more, it's the sides—and the sides *alone*—that grip the driven pulley and *deliver* the power to it.

That is why you have always noticed that the sidewall of the ordinary V-Belt is the part that wears out first.

—and Here Is How the CONCAVE SIDE *REDUCES Sidewall WEAR *and Lengthens Belt Life!*



Clearly, since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will lengthen the life of the belt.

The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the *middle* of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

Straight Sided V-Belt

How Straight Sided V-Belt Bulges When Bending Around Its Pulley.

You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Gates V-Belt with Patented Concave Sidewall

Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley

No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

*More Important NOW That STRONGER Tension Members are Used

Now that Gates *Specialized* Research has resulted in V-Belts having much stronger tension members—tension members of Rayon Cords and Flexible Steel Cables, among others—the sidewall of the belt is often called upon to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before!

THE GATES RUBBER COMPANY Denver, U. S. A.

"World's Largest Maker of V-Belts"

473

GATES VULCO ROPE DRIVES

Engineering Offices and Jobber Stocks **IN ALL INDUSTRIAL CENTERS** of the U. S. and 71 Foreign Countries

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For years the price of NACCONOL NR has gone steadily downward. Today it costs two-thirds less than in 1932! You will continue to benefit by our greater production and technology.

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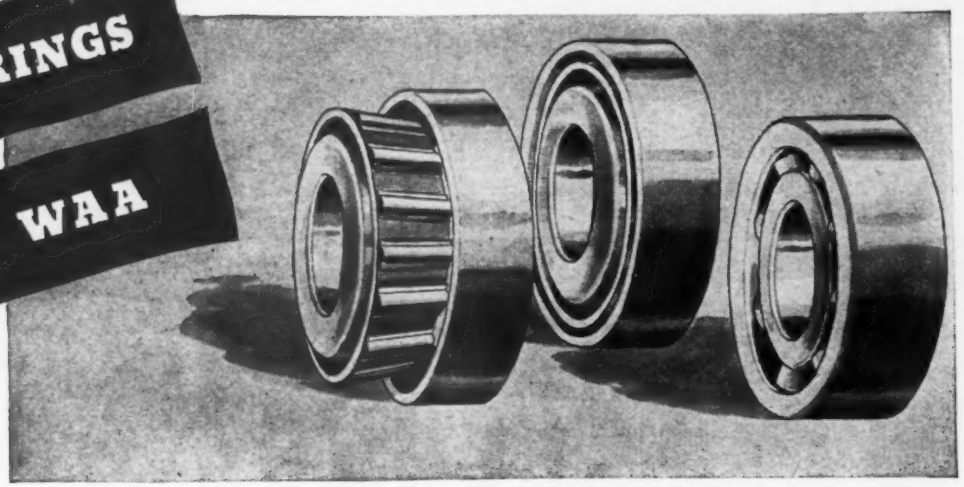

Get your bearings from the $20,000,000 stock now being sold by WAA. Friction and anti-friction bearings and components in all sizes and types are included in this stock. Many sizes are available in production-run quantities. Set your own price on what you need and submit your bid. Get all pertinent information from your nearest WAA Regional Office—go there to make your own inspection.

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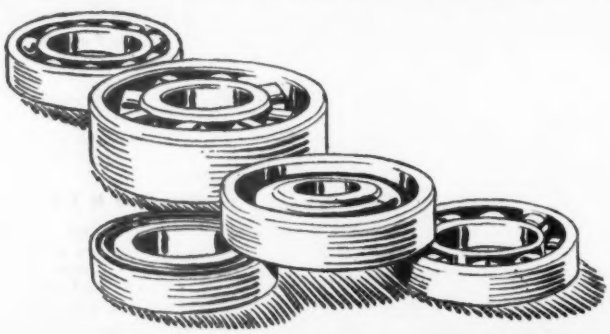

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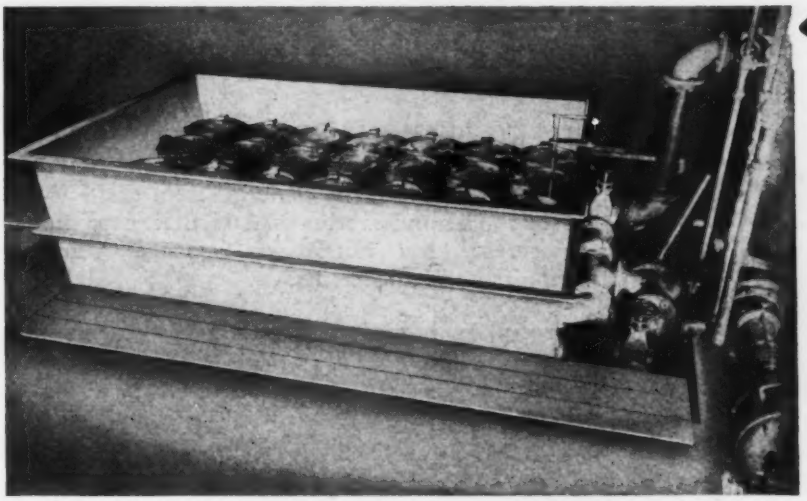
THESE NEW WORSTED TOP DYEING MACHINES IMPROVE QUALITY AND PRODUCTION

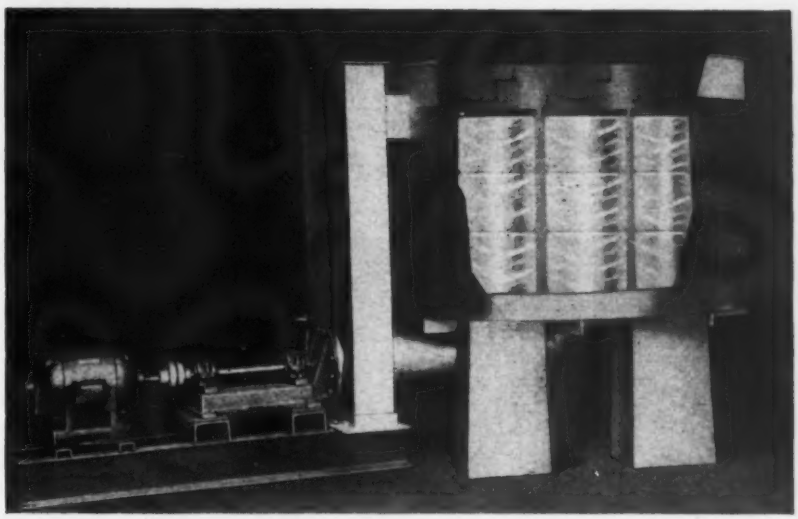


WORSTED TOP DYEING MACHINE

In this new machine each worsted top of 15 to 18 pounds is individually dyed, thus assuring maximum fiber protection. A connected vacuum station extracts moisture from the dyed top, without the tops being removed from their individual pots. All stainless steel construction.

ALSO THE LATEST SPINDLE SYSTEM WORSTED TOP DYEING MACHINE MODEL RAPR

All Stainless Steel Construction, especially designed for dyeing worsted tops by spindle system. Processes tops of different dimensions or uniform dimensions at the same time, giving thorough penetration in either case.



WORSTED TOP DYEING MACHINE—SPINDLE SYSTEM, MODEL RAPR

Standard Fabricators

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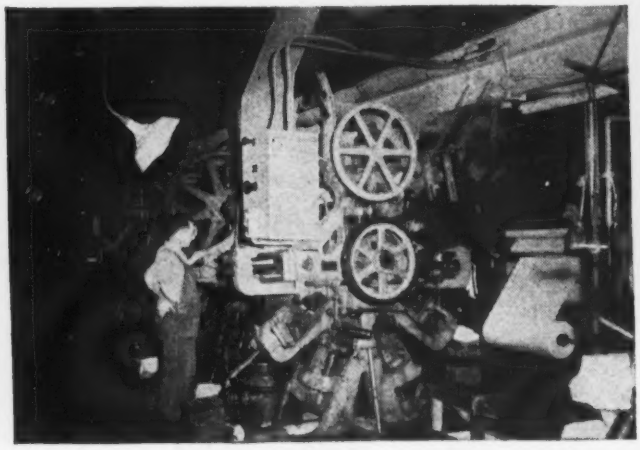

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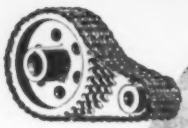

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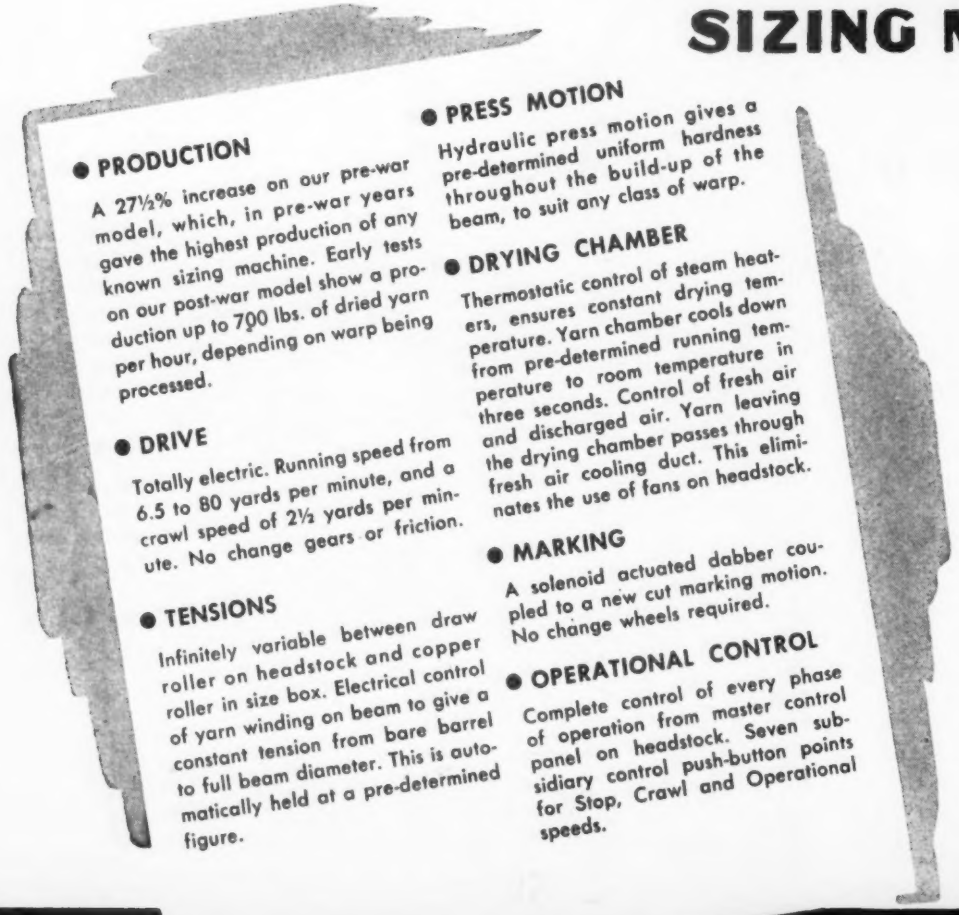

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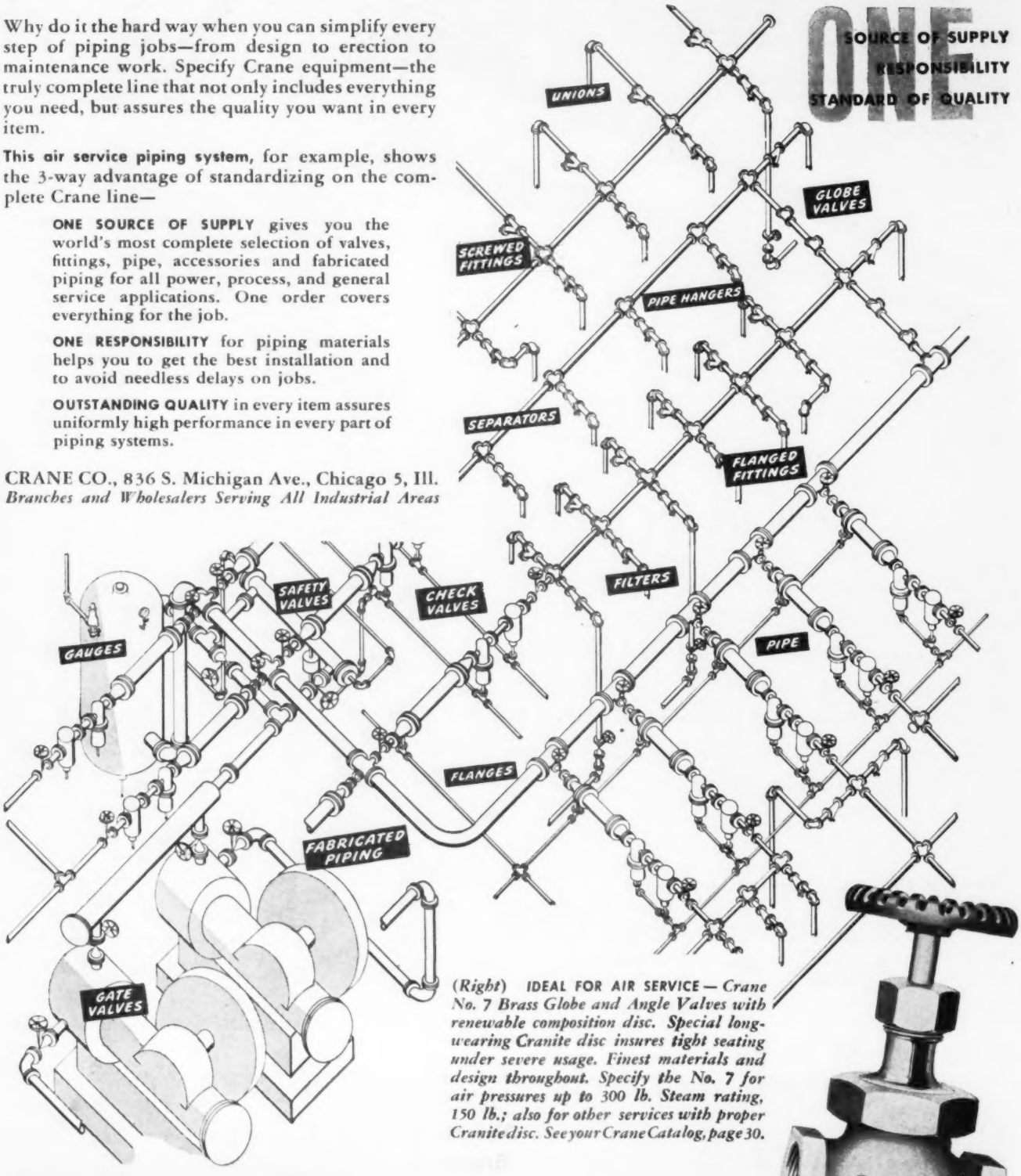

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OUR TEACHERS—

They Need The Help Of Business Now

THIS is an appeal to raise school teachers salaries—fast. Such appeals are commonly addressed, rather vaguely, to the conscience of the community. This one is not. It is addressed directly to the business community, and to its hard core of common sense.

As a whole, the school teachers of the nation are taking an economic beating. So, too, are their close associates and co-workers, the librarians. In purchasing power, public school teachers salaries, after taxes, average about 20 percent less than they did eight years ago. Beginning salaries of librarians, always low, have fallen behind an equal amount in purchasing power. College and university teachers are not much better off. The pressure is particularly heavy on those in the lower ranks. As a group, teachers and librarians are close to the bottom of the economic heap.

Unless this situation is remedied promptly, it is confidently to be expected that:

1. The more competent teachers will continue to desert our schools in droves, and our libraries will remain inadequately staffed. More than 350,000 teachers — many of them the very able ones—have left the public school teaching staff of about 900,000 in the last six years. More than 100,000 of the replacements are "substandard." They cannot meet the minimum educational requirements of their jobs which, by admission of the profession itself, are none too high.

2. Those who remain will be organized increasingly into economic pressure groups. Teachers strikes and the rapid growth of unionism among teachers at present clearly indicate what is in store.

Many business men are so deeply disturbed by the resort to the strike weapon by some teachers to enforce their salary demands that their sympathy for the general plight of our teachers tends to be dulled. Such an attitude is understandable. It avails nothing, however, in eliminating the crisis in education caused largely by teachers salary troubles.

The crisis in education is a crisis for the nation as a whole. The work of our schools, colleges and libraries is such that its deterioration means deterioration of the nation. However, the salary crisis in education is in special measure a crisis for the business community. That community has a special stake in having a well-educated and well-disposed constituency.

Education and Unionism

There may be room for disagreement as to whether teachers should organize themselves in trade unions, and follow trade union tactics. However, there is no conceivable room for disagreement as to whether organization of teachers into a fighting economic pressure group under the lash of a teachers salary crisis would be a body blow to business. Among many teachers it would foster an abiding hostility to the institution of business which, occupying a key position in the life of the community, had not done its utmost to make such unionization unnecessary by taking a lead in relieving the teachers salary crisis.

In our work of publishing technical periodicals and text books, we at McGraw-Hill meet and come to know many teachers and librarians. We know that, as a group, they have little appetite for participation in militant economic pressure groups. They are far more interested in making a militant assault on ignorance and prejudice through concentration on their professional work. If, through neglect of their economic needs by the business community, they feel forced to resort to trade union organization and tactics, the teachers and librarians can be expected to have an abiding

sentment toward the institution of business. That resentment will, in turn, be communicated in no small measure to the coming generation. Such is the nature of the educational process.

The crisis in education is not, of course, exclusively a matter of salaries. Unsatisfactory working conditions also play a part. Many schools are dilapidated and terribly overcrowded. So are some libraries. Some small-town school boards oppressively insist that the school teachers be the paragons of piety the board members wish they were themselves. Protection of a proper degree of academic freedom is sometimes missing. The teacher is rarely accorded a prestige comparable to the importance of the job. Elements such as these aggravate the crisis in education. But the first and absolutely essential step toward surmounting the crisis is to provide tolerable salaries.

Because of the enormous diversity of local conditions affecting teachers and librarians salaries, no general rule for emergency action would fit all cases. From state to state, average yearly expenditures on education in 1940 varied all the way from about $30 per pupil to about $150. Some states, like Nebraska, finance their schools almost exclusively from local taxes. Others, like Delaware, rely almost entirely on state taxes. Some states and communities have already acted to meet the salary crisis. Others have not. Variations such as these limit any generalization.

Guide for Emergency Action

But as a general proposition it can be safely said hat the minimum requirements of the emergency vill not have been met so long as the salaries of lass room teachers and junior members of college aculties and library staffs have not been inreased by the amount necessary to keep them breast of the increase of about 50 percent in the st of living since 1939. In many cases, a temporary st of living adjustment might prove the best way handle the problem.

This suggestion, let it be repeated, is not offered a solution of the salary problem, but as a start. th their salaries increased enough to meet the reased cost of living, the teaching and library ups as a whole would still have cause to envy current economic position of industrial workers. ce 1939, the average of weekly earnings of industrial workers after taxes, has outstripped the rise in the cost of living by about 21 percent.

However, a start and an absolutely essential start would be made toward giving America the sort of educational system it must have not only to fulfill its ideals but holds its own in this highly competitive world. We worry, and I think rightly, about having the free world engulfed by Russian Communism. According to the best figures available, the U.S.S.R. is spending about twice as large a share of its total national income for education as we are. The figures compared include our expenditures for both public and private education. That comparison is really something to worry about.

States Should Take Lead

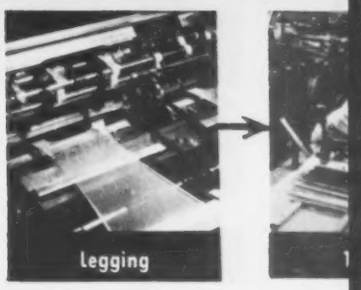
In dealing with the salary crisis it is up to the teachers to display a maturity and integrity worthy of their profession. Teachers have many employment advantages, such as long vacations. They should not slur them over in making comparisons of their annual incomes. Also employment in teaching and libraries has been notably stable. Teachers and librarians should not ignore that fact in comparing their position with those whose employment has been far less steady.

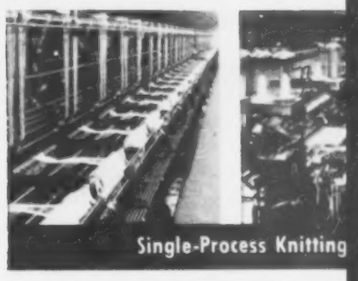
At the same time, the great fiscal difficulties involved in solving the crisis in teachers and librarians salaries must not be used as an excuse for postponing effective action. The states are better equipped financially and otherwise to take such action than is the federal government and, with the localities directly involved, should take the lead. If the price of effective action is a heavier tax burden for communities already too heavily burdened that price must be paid. The crisis presents a major emergency. To handle it as anything less is to court irreparable damage to the nation as a whole, and a special measure of damage to business as well. The intelligent self-interest of business requires that it leave nothing undone to meet and master the crisis in education.

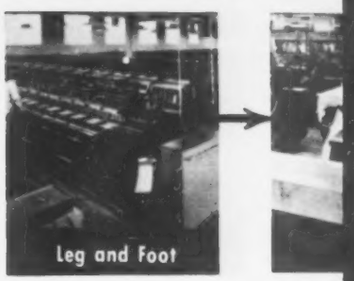
James H. McGraw, Jr.

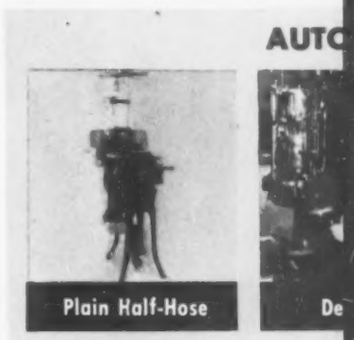
President McGraw-Hill Publishing Company, Inc.

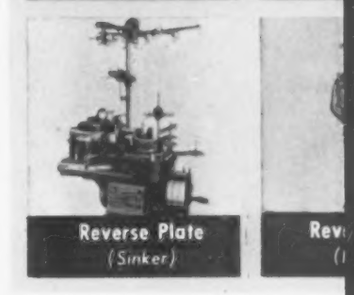
TEXTILE WORLD'S KNITTING FLOW CHART

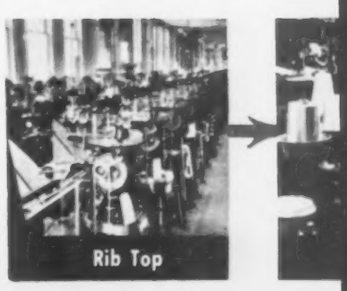












HIGHLIGHTS: *Knitting in divided into five clearly defined sections — Some include finishing operations and garment manufacture—Many mills specialize on part of sequence —Chart is second of series covering textile industry.*

THE KNITTING DIVISION of the textile industry has very distinct sub-divisions, as is evident from this flow chart. The sub-divisions are much sharper than those for cotton shown in the first of TEXTILE WORLD's series of flow charts [Jan., 1947]; and, as a result, the chart is much simpler.

In most of the operations shown, a wide variety of equipment can be used – for example, in most knitting operations and in preboarding, dyeing, finishing, sewing, drying. It is impossible to show in such a chart all the varieties of equipment which will be found in a complete directory of manufacturers, such as the one which appears annually in the *Pre-Filed Textile Catalogs and Textile World Yearbook*.

The chart points out practically all the manufacturing steps in knitting plants. A minor omission consists of operations which are unusual, such as the salvaging of yarn from rejects, various rewinding operations, and the like. Another omission is the flow through individual sewing operations. To do justice to all the possible variations in sewing operations, particularly in a departmentalized plant, would be a fitting subject for a separate chart.

In the manufacture of knit goods, there are occasions when more than one operation is performed by a machine. These fall into two classes: one in which the machine does a related operation, such as when a knitting machine automatically turns welts; the other is when the same machine is used for several distinct operations, such as for scouring, bleaching, and dyeing.

The red lines and arrows in the chart show the main flow through the various sections. The black show possible, but less usual, flow. More than one red line is used when there are two or more possible lines of flow which are of importance.

Many knitting mills do not complete all of the operations needed for their products. For example, they may knit but not finish hosiery; they may knit and/or finish fabrics but not manufacture them into garments.

The throwing operation, which is often associated with the production of women's hosiery, will be included in a later flow chart on continuous-filament synthetics.

For production of knit fabrics from dyed cotton yarn, see TEXTILE WORLD's cotton flow chart. A chart to be published later will show wool dyeing.

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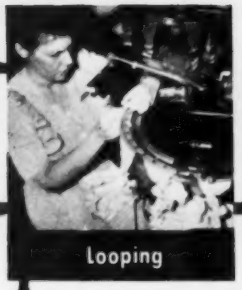
Through the years, the absence of complete flow charts of textile-manufacturing processes has proved to be one of the great deficiencies in textile-industry literature. *Textile World* is now filling this gap by compiling and publishing a series of such charts, of which the accompanying is the second. The knitting branch of the industry was selected for coverage at this particular time so that publication of the chart would coincide approximately with the rebirth of the Knitting Arts Exhibition, scheduled for Atlantic City, April 29 to May 2, 1947.

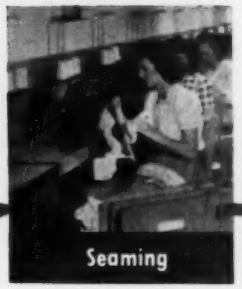
Since *Textile World's* cotton flow chart first appeared, many requests have been received for reprints. The cotton flow chart is being used, according to letters received, for instruction of employees and students, as a convenient reference for planning changes in mill operations, for making clear to workers the relationship of their particular operation to the whole manufacturing process, and for many other purposes. Reprints of both charts can be obtained, as long as the supplies last, from *Textile World*, 330 West 42nd Street, New York 18, N. Y. Price of the cotton chart is 25¢ (15¢ each in quantities of 20 or more); the knitting chart 15¢ (10¢ each in quantities of 20 or more).

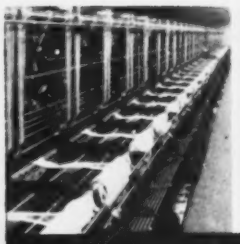
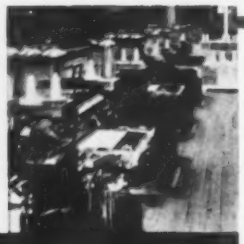
Legging

Topping

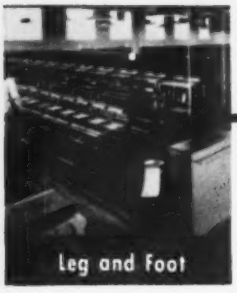
Footing

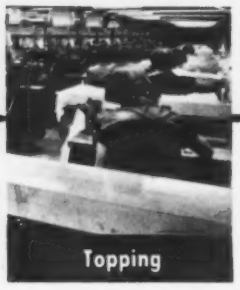

Looping


Seaming



Single-Process Knitting

Circular Knitting

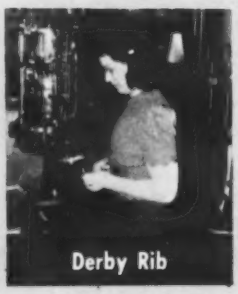

Leg and Foot


Topping

Heeling

AUTOMATIC KNITTING

Plain Half-Hose

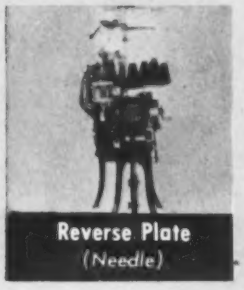

Derby Rib

Wrap Reverse Plate

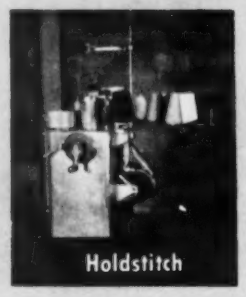
Wrap Stripe

Wrap Bobbin Winding

Reverse Plate
(Sinker)

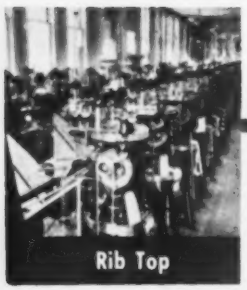

Reverse Plate
(Needle)

Links and Links

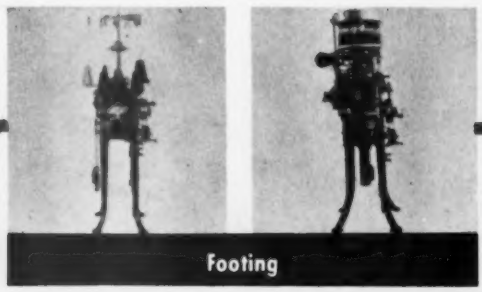

Holdstitch

Looping

TRANSFER KNITTING


Rib Top

Topping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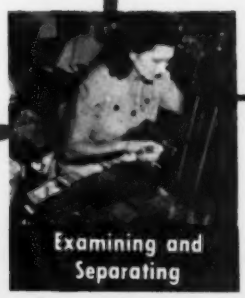
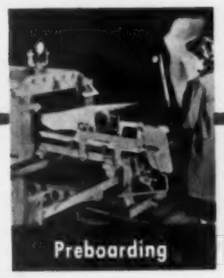
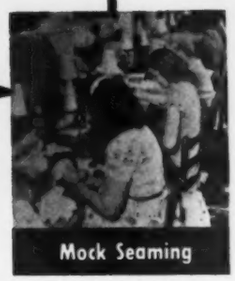
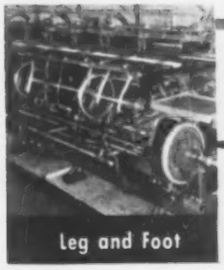

Examining and
Separating

Women's Hosiery

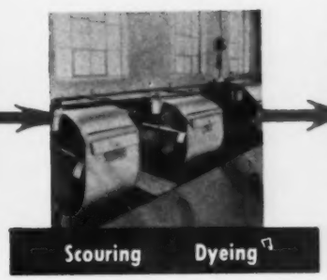


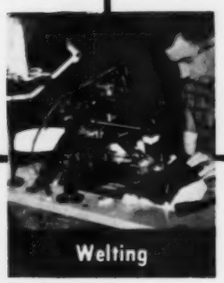


Men's Full-Fashioned



Half-Hose, Anklets, Children's Hos





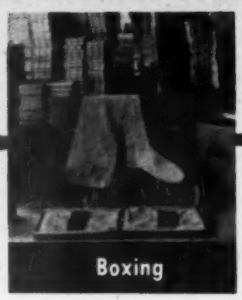
Legend:

- Principal flow of material
- Variations in flow
- End of flow

Boarding

Pairing
(Examining)

Stamping

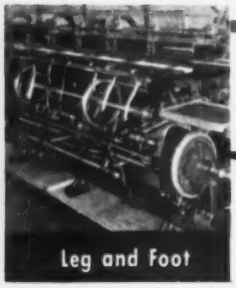

Boxing

Shipping

Mending

From here flow picks up at looping

and follows same as women's

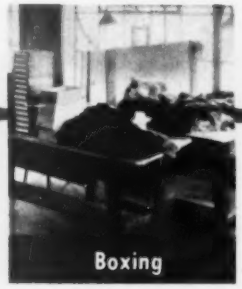

Leg and Foot

Sewing Top

ildren's Hose, etc.

Examining and Pairing

Stamping


Boxing

Shipping

al flow of material

ions in flow

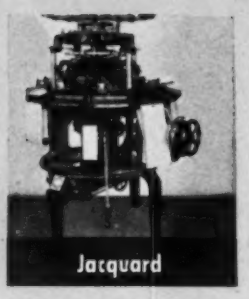
flow

CIRCULAR KNITTING

Jersey

Rib

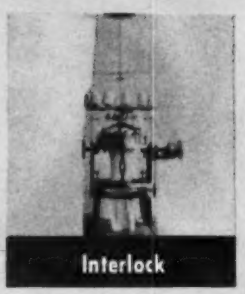
Links and Links


Jacquard

Wrap Bobbin Winding

Wrap Stripe

Fleece


Interlock

Insp

WARP KNITTING

Warping

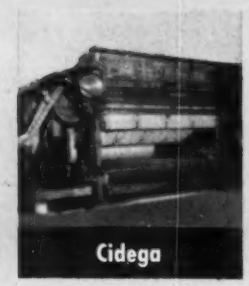
Tricot

Raschel

Simplex

Milanese

Kayloom


Cidega

FLAT FILLING KNITTING

Winding

Plain and Rib

Links and Links

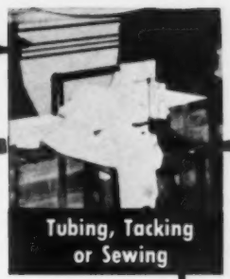
Jacquard

TEXTILE WORLD'S KNITTING FLOW

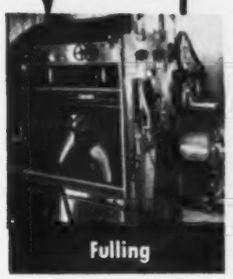
Knit Underwear and Outerwe

Inspection

Packing


Tubing, Tacking or Sewing

Scouring


Fulling

Bleaching

Dyeing

Extracting

Wet Spread Extracting Process

Drying

Brushing or Sueding

Inspection

Packing

GARMENT MAKING IN KNIT-GOODS PLANTS

Shipping

Laying Up

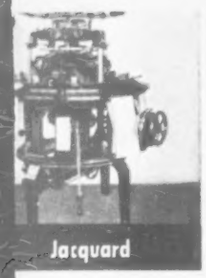
Cutting

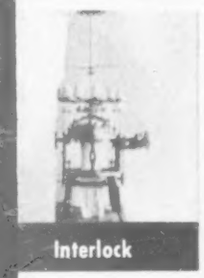
Bundling Inspect

Weighir

TEXTILE WORLD'S KNITTIN

Knit Underwear ar


Jacquard


Interlock

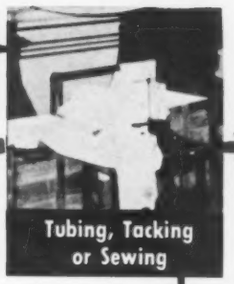
Simplex

Cidega

Jacquard

Inspection

Packing


Tubing, Tacking or Sewing

Fulling

Scouring

Bleaching

Dyeing

Extr

Inspection

Packing

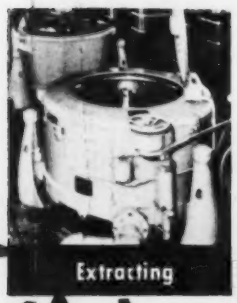
GARMENT MAKING IN KNIT-GOODS PLANTS

Laying Up

Shipping

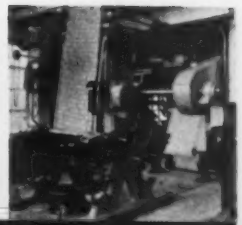
TING FLOW CHART

and Outerwear

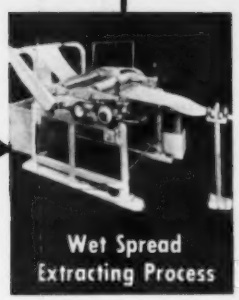

Extracting

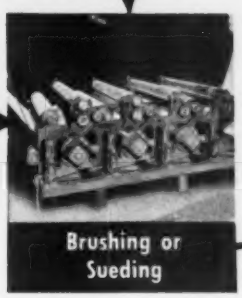
Drying

Printing (Screen)


Printing (Roller)

Drying


Wet Spread Extracting Process


Brushing or Sueding

Napping

Shearing

Cutting

Bundling and Inspection

Weighing

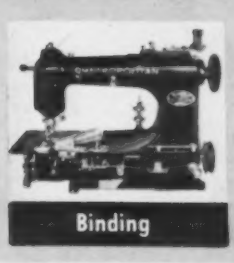
SEWING OPERATIONS

Seaming

Collaretting Cover Seaming Button Hole
Cuffing Hemming Trimming Shirring
Bar Tacking Embroidery Button Sewing

Elastic Attaching

Overedging-Hemming


Binding

Grateful acknowledgment **is made to individuals of the following companies for assistance in compiling this flow chart — for supplying photographs, checking preliminary drafts, and giving expert advice.**

Abbot Machine Co.
American Viscose Corp.
Aveco, Inc.
Boyd Corp., Chas. P.
Brinton & Co., H.
Butterworth & Sons Co., H. W.
Cidega Machine Shop, Inc.
Crane Mfg. Co.
Dubied Machinery Co.
Edmos Products Corp.
Fidelity Machine Co., Inc.
Foster Machine Co.
Hemphill Co.
Hermas Machine Co.
Hofmann, Inc., Alfred
Hunt Machine Co., Rodney
Hunter Machine Co., James
Kidde Mfg. Co.
Lazenby & Co., F. A.
Leibernecht, Inc., Karl
Leighton Machine Co.
Merrow Machine Co.
Paramount Textile Machinery Co.
Proctor & Schwartz, Inc.
Reiner, Inc., Robert
Riggs & Lombard, Inc.
Robaczynski Machine Corp.
Scott & Williams, Inc.
Singer Sewing Machine Co.
Smith-Drum & Co.
Supreme Knitting Co.
Textile Machine Works
Tompkins Brothers Co.
Tublar Textile Machinery Co.
Union Special Machine Co.
Universal Winding Co.
Van Vlaanderen Machine Co.
Whitin Machine Works
Wildman Mfg. Co.
Willcox & Gibbs Sewing Machine Co.
Woonsocket Napping Machinery Co.

Drying

Packing

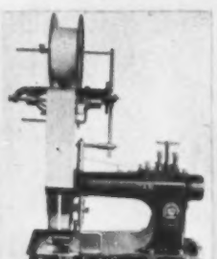
Shipping

Steaming

Calendering

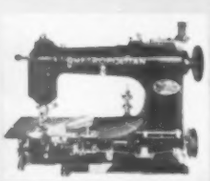
VING OPERATIONS

g Cover Seaming Button Hole
Hemming Trimming Shirring
g Embroidery Button Sewing

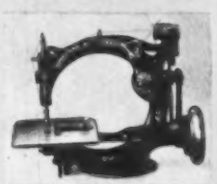


Facing-Taping

-Hemming



Binding



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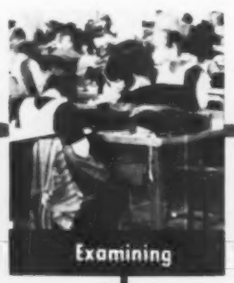


Examining

Pressing

Packing

Shipping

Mending

Fig. 1. The twister room, which utilizes almost the entire second floor, was formed by knocking out sections of the wall between the new addition (foreground) and the original structure. So far, 30 new Atwood Utility twisters have been installed, and remaining space is sufficient for installation of that many more. Air-conditioning system serving this room also serves new laboratory.

Extensive Improvements Aim at Better NYLON THROWING

HIGHLIGHTS: *Air conditioning and fluorescent lighting pay off in better quality at Atwater plant of Hess, Goldsmith & Co., Inc.—Well-equipped laboratory includes single-section full-fashioned knitting machine as part of equipment—Mechanized handling and well-organized materials flow result in efficiency—Good working conditions, with continued stress on safety and housekeeping, give employee satisfaction.*

By GORDON B. M. WALKER, *Assistant Editor, TEXTILE WORLD*

UNIQUE FACILITIES for the production of high-quality nylon hosiery yarns are realized by the recently enlarged and modernized Atwater Div. of Hess, Goldsmith & Co., Inc., at Plymouth, Pa. A two-story addition to the original plant added about 30,000 sq. ft. of floor space; air conditioning and fluorescent lighting of the entire operating area and of the plant offices made possible better quality and added to employee comfort; mechanization of handling methods and reorganization of materials flow resulted in increased efficiency; and increased laboratory space and equipment made possible better control of processing. Construction was performed by Sordoni Construction Co., Wilkes-Barre, Pa.

Fig. 2. One corner of Atwater's well-equipped laboratory illustrates the completeness of this unit. Girl in background is making single-strand strength and elongation tests.

WELL-EQUIPPED LABORATORY. The new laboratory, parts of which are shown in Fig. 2 and 3, was formed

Fig. 3. A single-section full-fashioned knitting machine, installed in the laboratory, is very useful in evaluating knitting qualities of yarns produced by the plant. The girl seated at the table is checking twist in thrown yarn.

by consolidating existing testing facilities and adding new devices and equipment to make possible the performance of practically any test within the cognizance of the unit. Atmospheric conditions within the laboratory are completely controlled by the system serving the adjacent twister room. In addition to conditioning ovens, twist testers, titration equipment, seriplane, serimeter, and ether-extraction equipment, the unit also contains a single-section full-fashioned knitting machine, shown in operation in Fig. 3, for evaluation of the knitting qualities of the yarns produced by the plant.

Flow of materials through the plant starts and ends at the new receiving and shipping platform. Formerly, inadequate space forced trucks serving the mill to load and unload in the street, causing congestion of the area. The new off-the-street facilities provide space for simultaneous loading or unloading of four trailer trucks.

Yarn received is carried mechanically by an Alvey conveyor (Fig. 4), installed by Sordoni Construction Co., to the top-floor storage area, Fig. 5, where it is stacked on pallets for efficient handling. From storage, yarn goes to the air-conditioned redraw department on the same floor, from where it moves by mechanical conveyors in a downward flow through the various departments, eventually returning to the shipping platform.

NEW TWISTERS INSTALLED. The twisting department utilizes almost the entire second floor, as illustrated in Fig. 1. By knocking out sections of wall between the old and the new structures, a large space was obtained in which 30 new double-deck twisters have been added to the 62 machines previously in use. There is sufficient space available for a still larger installation which is now in the planning stage.

All machines in this department are Atwood Utility model up twisters, with the exception of two Atwood Model 10 doubler twisters. The new up twisters handle 12-oz. packages, the old up twisters take 10-oz. packages, and the doublers accommodate 20-oz. packages. The twister room is maintained at 80° F. and 65% r.h. by a Buensod-Stacy central-station air-conditioning system of 81,000 c.f.m. capacity. Wheeler fluorescent lighting, installed by Frank & Baldwin, Wilkes-Barre, Pa., aids employee vision and is an aid in maintaining highest efficiency and quality.

After twisting, the yarn is conditioned on steaming spools to set the twist and then is conveyed to the floor below to the sizing department. Spools are carried on pin boards to permit ease and economy in handling and in spare-floor storage.

Sizing and coning departments are located on the ground floor. Sizing,

Fig. 6. Sizing of twisted yarn is accomplished on Universal and Foster machines in three separate but identical rooms. Completely controlled conditions, including Carrier refrigerated air conditioning, promote uniform quality; individual control of machines permits highly specialized functioning.

Fig. 7. Coning and oiling of nylon hosiery yarns at the Atwater plant are performed on Universal No. 50 winders in a Bahnson air-conditioned, windowless, fluorescent-lighted room. Latest pineapple attachments are used on the winders. Inspection of finished cones (see Fig. 8) is performed in a section of this room.

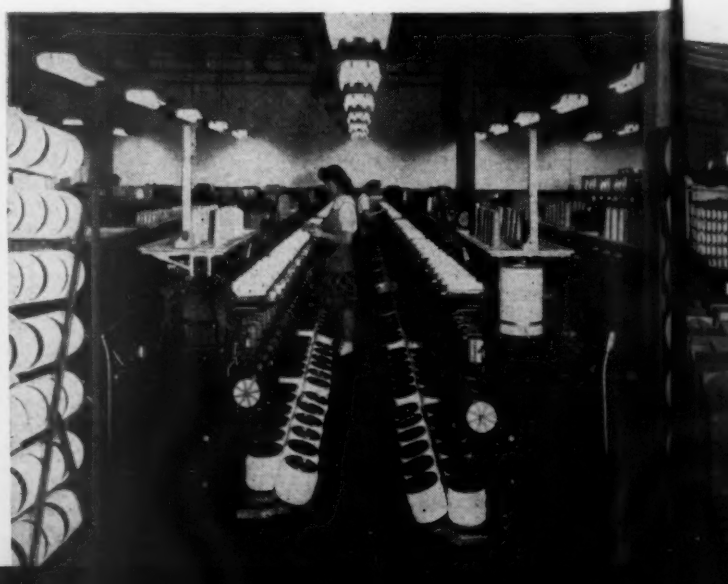


Fig. 4. Yarn at the new loading platform is hoisted mechanically, by means of this conveyor, to the top-floor storage area.

Fig. 5. Palletizing of stored yarn, prior to use, permits efficient handling by means of lift trucks. This method also is reported to make easier the problem of inventory control and lot segregation.

Fig. 6, in the original building, has been extended to three separate identical rooms, each of which is served by its own Carrier refrigerated-air-conditioning unit. The air conditioning units are 7½-ton machines and were installed by Power Engineering Co., Wilkes-Barre, Pa. Both Foster and Universal sizing machines are used; all machines are individually controlled, permitting highly specialized functioning.

The coning department, Fig. 7, which occupies most of the first floor of the new building, is of windowless design and is served by a Bahnson 20-hp. air-conditioning system installed by the manufacturer. Universal No. 50 winders with latest pineapple attachments are used. Finished cones are inspected and packed in a section of the coming department. A unique conveyor, shown in Fig. 8, tailored for the job by the mill and manufactured in the mill's shop, aids in inspecting, weighing, wrapping, and packing the cones. A second conveyor, made by Alvey Conveyor Co. and installed by Sordoni Construction Co. carries the full cartons to the shipping platform.

ADDITIONAL CHANGES. Other improvements in the plant which were effected along with the building of the new addition include a new lunch room, Fig. 9, in which employees may eat food brought from home or purchase sandwiches, coffee, milk, hot soup, and other dishes. Throughout the plant, the use of color dynamics in interior painting provides each room with an individual color scheme of three harmonizing pastel colors designed to give the best degree of light for each set of working conditions and to achieve the utmost in beauty at no sacrifice in practicality. In addition, vital power, safety, and plant-protection equipment is designated by key colors; the meanings of the various colors are impressed upon employees by posters, as will be noted in Fig. 9. An intensive safety campaign has been instituted, using posters, and stress is being laid on the advantages of good housekeeping.

A regularly scheduled reconditioning and maintenance program has been put into effect; it is expected to eliminate entirely the repairing of equipment on operating time.

New power installations include a 2,500-amp. switchboard utilizing new Bustribution feeders to transformers. Power lines have been entirely redistributed, and panel boards provide controls for all departments. Major power lines are installed in under-floor trenches.

Further improvements planned and in progress include installation of individual-motor drives on the few remaining group-drive twisters and construction of a new machine shop in the new building.

Fig. 8. Inspection, weighing, and packing of finished cones take place around a specially built conveyor table. Packed and sealed cartons are carried to shipping platform by a conveyor which takes cartons fed to it from the packing line. Illustration shows cartons being carried up through opening behind girl in left background.

Fig. 9. Employee welfare had its place in the modernization and expansion program, as illustrated by this photo of the new employees' lunch room. Workers may bring own food or purchase simple lunches here. Poster is an example of education program which stresses safety and good housekeeping.

Cotton-Storage Practices Contribute to FIRE LOSSES

Fig. 1. Cotton is easily ignitable even in baled form. Unless warehouses and other cotton-storage areas are suitably located, constructed, and provided with proper methods of fire prevention and control, any fire starting in such a department is most likely to be a serious one from the standpoint of loss. Smoke hatches to vent smoke and heat, proper and instantaneous fire alarms, immediate removal of burned and wet bales are some of the safeguards which will lessen the loss.

HIGHLIGHTS: *Cotton - storage fires amount to 2.3% of total cotton-mill fires, but fire-loss rises to about 20% of total—Fires caused by electrical equipment and spontaneous ignition show decided increases—Common sense fire prevention and fire control point the way toward reduced loss.*

By A. L. BROWN, *Chief Engineer, Associated Factory Mutual Fire Insurance Companies*

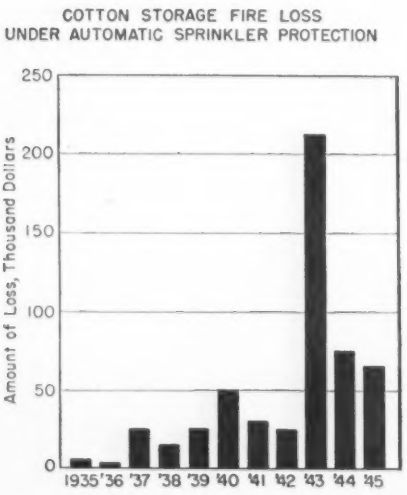


Fig. 2. Cotton-storage fire-loss for the years 1935 to 1945 inclusive is shown graphically in order to emphasize the marked increases in fire loss in cotton warehouses and other cotton occupancies. Proper safeguards can reduce the amount of loss when fire strikes the warehouse. (All fires were under automatic sprinkler protection. This chart was prepared by the inspection department of Associated Factory Mutual Fire Insurance Companies.)

ALTHOUGH ONLY 2.3% of fires in housing of cotton originated in baled-cotton storage departments during the period from 1935 to 1945 inclusive, the loss caused by these fires amounted to $527,000 which was 1/5 of the total cotton fire-loss and was second only to the loss incurred in opener-picker rooms. These findings are based upon the annual cotton-storage fire-loss statistics compiled by the inspection department of Associated Factory Mutual Fire Insurance Companies, of Boston, Mass., and are shown in Fig. 2. The fires were under automatic - sprinkler protection and represent the combined experience of all cotton occupancies in Factory Mutual insured plants.

Because of the high loss incurred in this relatively small number of fires in cotton-storage departments, the fire experience of all plants was studied carefully from the standpoints of cause and prevention.

Briefly told, the experience shown in Table I, which covers the period from 1928 to 1945 inclusive, reveals that low-piled cotton (1 or 2 bales) had a more favorable experience than high-piled cotton, and that sprinklers were less efficient over high-piled cotton because of the greater difficulty of water reaching the spaces between the bales. In addition, baled cotton had flash-fire characteristics which resulted in more sprinklers opening on the dry-pipe system than on the wet-pipe system; and although wet-pipe protection was better, the difference in the average amount of loss between the two systems was not large.

FIRE CAUSES. Cotton is easily ignitable in storage, and every effort was made to analyze the compiled experience with respect to cause and future prevention. Two comparative nine-year periods of this experience in Factory Mutual insured plants are shown in Table II. It will be noted that the fires from certain causes increased in several instances during the latter nine-year period. A large number of the increased causes were traced to electrical equipment, such as wiring, lamps, stackers, switches, and fuses. Employee smoking, spontaneous ignition in bale wrappings, and outside sparks were other causes which showed increases.

These causes may be reduced, and fire prevention improved, by a stricter observance of the fundamentals of fire-safety.

Among other things, electrical equipment should be studied with respect to its suitability for hazardous location and should be maintained and handled carefully in cotton-storage areas. Smoking of course should be eliminated, and one helpful suggestion in this respect would exclude all unauthorized persons from the warehouse.

The increase in the number of fires under the cause-heading, "spontaneous ignition," indicates that housekeeping from the standpoint of fire prevention

TABLE I—LOW- VS. HIGH-PILED COTTON—WET VS. DRY SPRINKLERS

(1928-1945: 149 Fires—$387,800*)*

	WET SPRINKLERS				DRY SPRINKLERS				TOTALS			
Piles	No. of Fires	Aver. No. Spklrs. Opened	No. of Fires	Aver. Loss	No. of Fires	Aver. No. Spklrs. Opened	No. of Fires	Aver. Loss	No. of Fires	Aver. No. Spklrs. Opened	No. of Fires	Aver. Loss
Low.....	45	5.4	45	$1,345	38	15.5	38	$2,150	83	10.0	83	$1,718
High.....	43	12.8	38	$4,120	23	29.8	18	$4,950	66	18.7	56	$4,380
Totals.....	88	9.0*	83	$2,615	61	20.8	56	$3,050	149	13.9	139	$2,790

* Excludes (No. or amount) fires where water supply to the sprinkler system was shut off or otherwise interrupted, other stock or equipment involved, or cotton not insured.

Table I. An analysis of the fire experience compiled by Factory Mutual for the period 1928-1945, shows the experience for low- versus high-piled cotton, and wet versus dry sprinklers. Note the low-piled cotton had a more favorable experience and that the average loss per fire on wet sprinkler systems was somewhat less than that on dry sprinkler system.

needs to be excellent in cotton-storage areas. Improvements in housekeeping undoubtedly will be reflected in improved fire loss. Waste and bagging, baled waste, and dyed stock should be stored separately from raw cotton; and cotton should be guarded against sparks from locomotives, rubbish fires, and gasoline-driven vehicles.

SAFE LOCATIONS. Cotton storage should be well cut off from manufacturing processes, preferably in detached warehouses in which individual fire areas do not exceed 5,000 sq. ft. The cotton bales should be located so that fires may be fought effectively. Both low and high piles may be limited to 500 bales each and should be separated by an 8-ft. main trucking aisle and, if necessary, 6-ft. cross aisles. If high piling is necessary satisfactory maximum height is from 12 to 15 ft., with six bales on sides.

Basements are undesirable locations for baled cotton because of the increased fly or dust which aids in the spread of fire, in the increased exposure to fire causes, and in the difficulty of fighting cotton fires and handling burned or wet bales promptly.

SMOKE HATCHES. Some means for venting smoke and heat from the cotton storage area, particularly where bales are piled high, will facilitate fire fighting, result in fewer sprinklers opening, permit more prompt removal of burned bales, and generally reduce the loss. Smoke hatches are satisfactory when located at a ratio of 1 sq. ft. to every 50 sq. ft. of floor space in the section.

Other safeguards, over and above adequate fire fighting, may be observed to reduce the loss in case fire should break out:

1. Plan for early discovery (either by watch service or sprinkler alarm).
2. Effect a prompt fire-alarm system (either private or public).
3. Plan for immediate use of fire pumps or other secondary supplies.
4. Ventilate the building.
5. Proper use of sprinklers and hose streams. Don't shut off or rob the water supply to sprinklers.
6. Immediate removal of burned bales to a safe outside location.
7. Guard the burned bales, put out smouldering fires, and salvage undamaged cotton as promptly as possible.

TABLE II—CAUSES OF COTTON-STORAGE FIRES

Cause	Number of Fires		
	1928-1936 (9 years)	1937-1945 (9 years)	1928-1945
Fire in bale when received.....	**17**	**15**	**32**
Electrical (Total).....	**2**	**23**	**25**
Wiring.....	1	7	8
Lamps.....	1	6	7
Stackers.....	..	6	6
Switches—fuses.....	..	4	4
Smoking.....	**5**	**18**	**23**
Spontaneous ignition (Total).....	**4**	**14**	**18**
Bale wrappings.....	..	7	7
Rubbish.....	3	2	5
Baled waste.....	1	2	3
Dyed stock.....	..	3	3
Outside sparks (locomotives, refuse fires, etc.).....	**2**	**12**	**14**
Incendiarism.....	..	**6**	**6**
Matches (on floor or light).....	**3**	**3**	**6**
Lightning.....	**2**	**3**	**5**
Spark from bale ties.....	..	**5**	**5**
Cutting—welding.....	**2**	**1**	**3**
Spark from gasoline stacker.....	..	**1**	**1**
Not determined.....	**29**	**12**	**41**
TOTALS.....	**66**	**113**	**179**

Table II. The causes of cotton-storage fires are tabulated in two comparative nine-year periods for analysis. Note that the number of fires listed under "electrical" and "spontaneous ignition" causes increased considerably in the latter nine-year period.

HIGHLIGHTS: Basic technique has crystalized for application of Lanaset to wool—Phase microscope studies show resin is both in and on fiber but does not form coating—Special fabric constructions being developed.

Drying Is Important In SHRINK-PROOFING Wool

By KENNETH H. BARNARD
Textile Resin Dept.,
American Cyanamid Co.

THE SUBSTANTIAL mill experience of the last two years makes possible some general conclusions on problems of processing and the mill techniques responsible for application of Lanaset resin to wool to control shrinkage.

The Lanaset process uses a melamine compound, known as an "alkylated melamine formaldehyde condensate." The fabric is impregnated with the resin in monomer form in an aqueous bath. Upon heat curing, this becomes a polymer and highly insoluble resin. The resin is both on and in the fiber, but it does not form a coating, nor does it change the essential qualities of the fiber. Wool fabric so treated has a high degree of resistance to shrinking or felting, and the treatment lasts for the life of the garment. So much for the background.

The success of Lanaset application, as with all textile finishing processes, starts with the gray goods. The woolen material should be thoroughly scoured, being sure that all processing oils and dirt are removed. All felting and fulling operations must take place before the treatment. After fulling, the goods are dyed or bleached as desired and are then ready for the application of the resin.

FOUR STEPS. Generally speaking, the mill procedure can be divided into four main steps, namely, impregnation, drying, curing, and washing. Of course, production is facilitated if the necessary machinery to carry out these operations is set up in tandem, thus eliminating boxing and trucking.

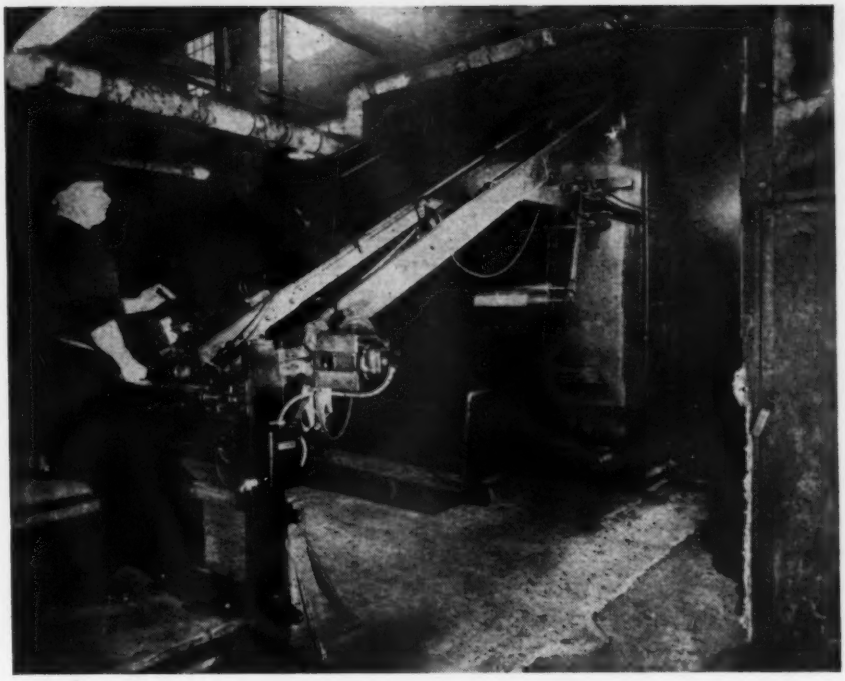
These four steps will be enlarged

UNTREATED **TREATED**

In these untreated and Lanaset treated wool fibers viewed with phase microscope, the white areas show clearly the location of the Lanaset resin finish on the wool.

(The phase microscope remedies one of the old problems of microscopy namely, the specimens whose structures vary only slightly in thickness or density toward light can be seen in good contrast without requiring staining, altering, or otherwise damaging the sample. Directed light rays affected slightly by the minute discontinuities of the specimen under examination are changed further in their amplitude and phase relationships relative to the undeviated rays by a specially constructed plate located above the objective, resulting in a final image of enhanced clarity.

Thus, thin colorless crystalline materials stand out boldly, making determination of their shape and size an easy matter. The nature of thin coatings of finishing agents on textiles, paper fibers, leather, and pigments can be more accurately determined by their accelerating development in this all-important field. The new microscope has been found beneficial in the examination of emulsions and dispersions of fine particle size. The physical characteristics of the core as well as the surfaces of fibers can be examined to advantage.)



Resin-treated woolen goods are here running on a pin tenter to a dryer for curing. Recommended curing temperature is 300° F.

upon in the following paragraphs; but it should be borne in mind that each different fabric presents its individual problems, which can be worked out by the specific mill concerned in cooperation with the resin supplier.

Impregnation can be carried out on a standard two- or three-rubber-rolled hydraulic or pneumatic padder. The goods should be dried before padding, although very promising results have been obtained with wet impregnation. For best results, padder pressure should be regulated to obtain not over 75.0% wet pickup, and bath made up so that approximately 12.5 to 13.0% resin is deposited on the goods. The resin is readily water soluble at room temperature. A small amount of wetting agent is put into the bath with catalyst.

Typical formula is as follows:

16.4 lb. Lanaset resin
0.5 lb. Aerotex accelerator 187
0.1 lb. Deceresol OT or softener H
83.0 lb. water

Thoroughly dissolve the resin in about half the quantity of water. Add the Deceresol OT (dissolved in water) to above, and finally add the thoroughly dissolved catalyst Aerotex Accelerator 187 to the mix. Add sufficient water to bring the bath to volume.

The pH should range between 7.0 and 8.0, and care should be taken that residual acid in the goods after dyeing does not lower the pH during the run.

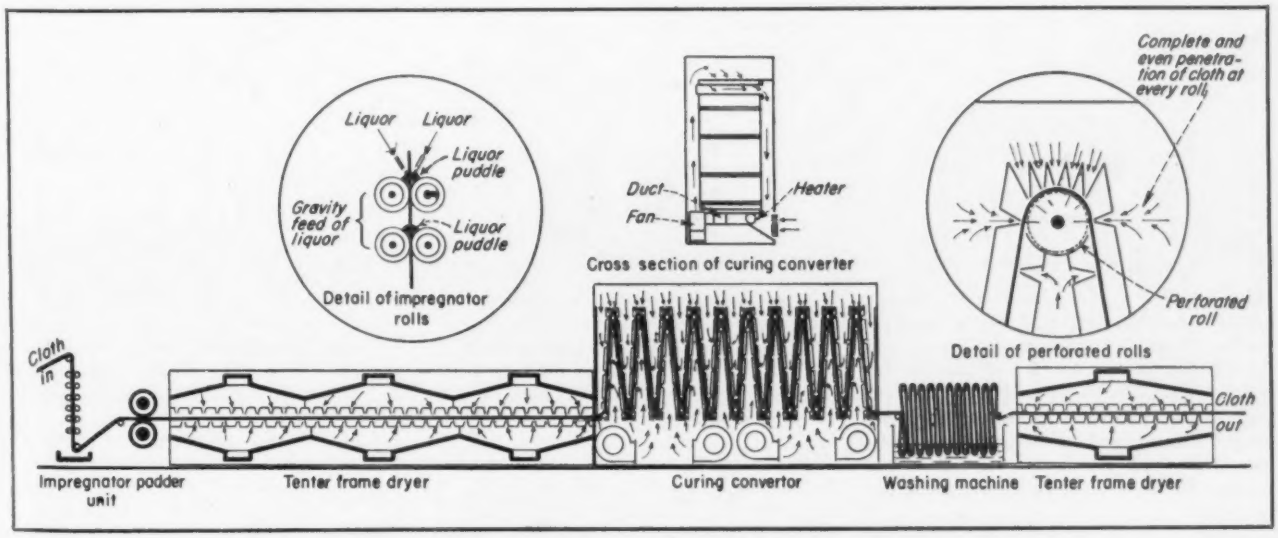
DRYING IMPORTANT. After impregnation, the goods are dried. This is a most important step, as the width and length of the material is set in this operation and cannot be later changed without being detrimental to the final results obtained with the finish.

For maximum shrinkage control, the dried and finished width of the material should be the same as when it comes from the padder. The goods in the wet state should be over-fed into the dryer, thus insuring minimum tension in the length.

There are numerous types of dryers; e.g., pin tenters, loop dryers, vacuum drum dryers, which have produced very satisfactory results. The temperature in the drying units may be as high as 250° F.; and it is essential that there be an even flow of air to the fabric, thus providing for even evaporation of moisture and consequent deposition of resin in the fabric. For most efficient results, a high velocity of air is desirable. The goods should be dried as soon as possible after padding. Prolonged standing in a box or truck will cause resin migration and consequent unevenness.

Following drying, the goods are cured; or, in other words, the resin is polymerized to an infusible and insoluble state. Here, as in the drying, a good circulation of air with high velocity is necessary for best results. There also should be an efficient sys-

(Continued on page 246)



Diagrammatic sketch of basic processing line for applying Lanaset resin to heavy piece goods.

New OPENER ROOM Designed For Best Cleaning

HIGHLIGHTS: *New opener room processes 5,000 lb. of cotton per hour at Swift Mfg. Co., Columbus, Ga.—Waste extracted amounts to 3.39%—Former equipment removed three bales of dust-house motes per week; present equipment removes eight bales.*

By E. A. BENTLEY
Superintendent, Swift Mfg. Co.

BETTER CLEANING and blending of cotton are being obtained at Swift Mfg. Co., Columbus, Ga., as a result of the new opener-room equipment it has installed. The room operates at a production speed of 5,000 lb. per hr., and the opened stock shows considerable improvement in spinning qualities. More even rovings and yarn are now obtained; and in the spinning room, there are fewer ends down and all yarns have a higher breaking strength.

A complete, new layout, devised for efficiently blending several grades of cotton, was installed in Sept., 1946. In order to obtain the maximum blending of the different cottons, it was considered desirable to put down as large a number of bales for the mix as convenient. Ample space was therefore provided for laying down 100 flat bales or 120 compressed or high-density bales.

The room contains four separate lines equipped with identical types of machinery. The entering machines for each line are five Lummus blending feeders. These machines operate at the following speeds:

Stripper	349 (rpm.)
Doffer	419
Stripper blows per spiked-apron flat	1.75.

FEED TABLE. The line of five feeders delivers the cotton to an Aldrich all-steel, individually driven feed table operating at 450 ft. per min. From the feed table, the stock passes to an 8-ft. inclined gyrator operating at 135 rpm. The gyrator is equipped with an Eriez magnet for removing tramp iron.

Five Saco-Lowell opening machines, which take the stock from the gyrator, are arranged as follows: No. 11 condenser, No. 12 opener, No. 11 condenser, No. 12 opener, and No. 11 condenser.

The first unit of No. 11 condenser and No. 12 opener operates at the following speeds:

Fan to No. 11 condenser	1,387 (rpm.)
Screen	112
Doffer	442
Feed rolls to No. 12 opener	210
Beater	704.

The second unit operates as follows:

Fan	1,036 (rpm.)
Screen	72
Doffer	275
Feed rolls	206
Beater	704.

(Continued on page 184)

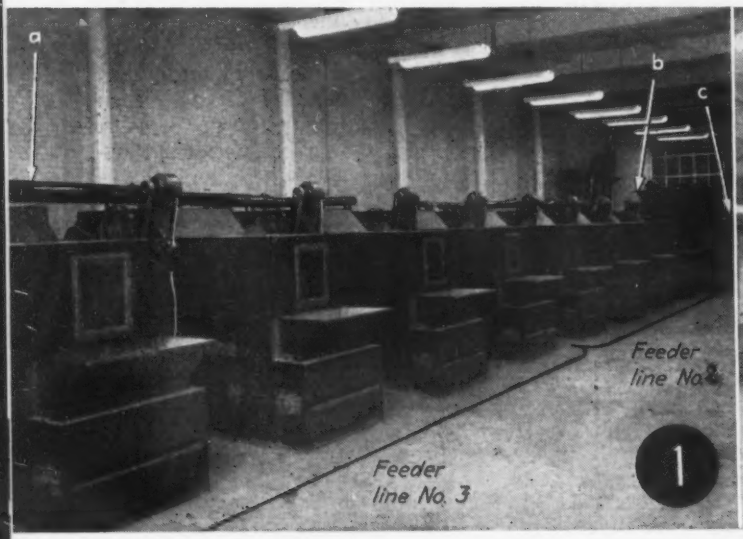


Fig. 1. *Five of these blending feeders are placed at the beginning of each of the four opening lines. In this photograph can be seen the feeders in line No. 2 and four in line No. 3. Note also dust-suction pipe a, which removes dust from the feeders and exhausts it in the dust room. Inclined gyrator b transfers stock from the feed table behind the feeders to pipe c, which carries the stock overhead to the line of condensers and cleaners which are shown in Fig. 3 on the opposite page.*

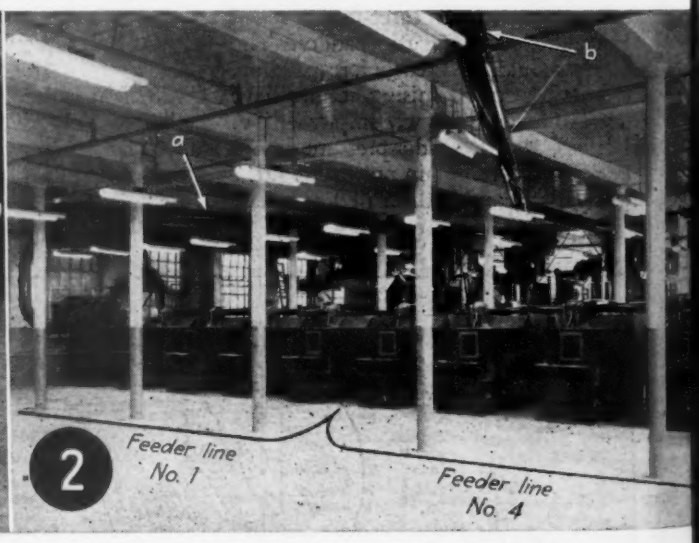
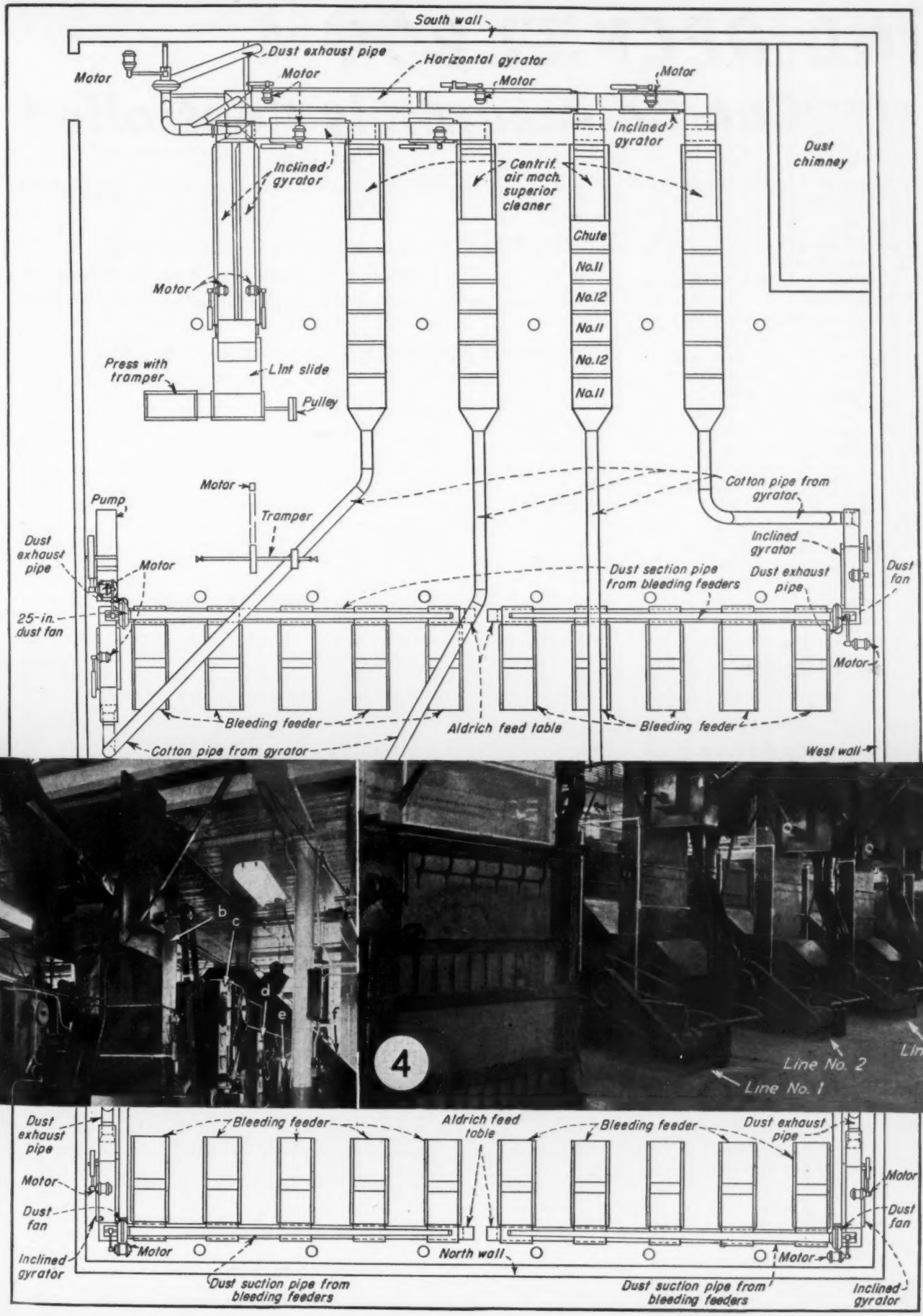
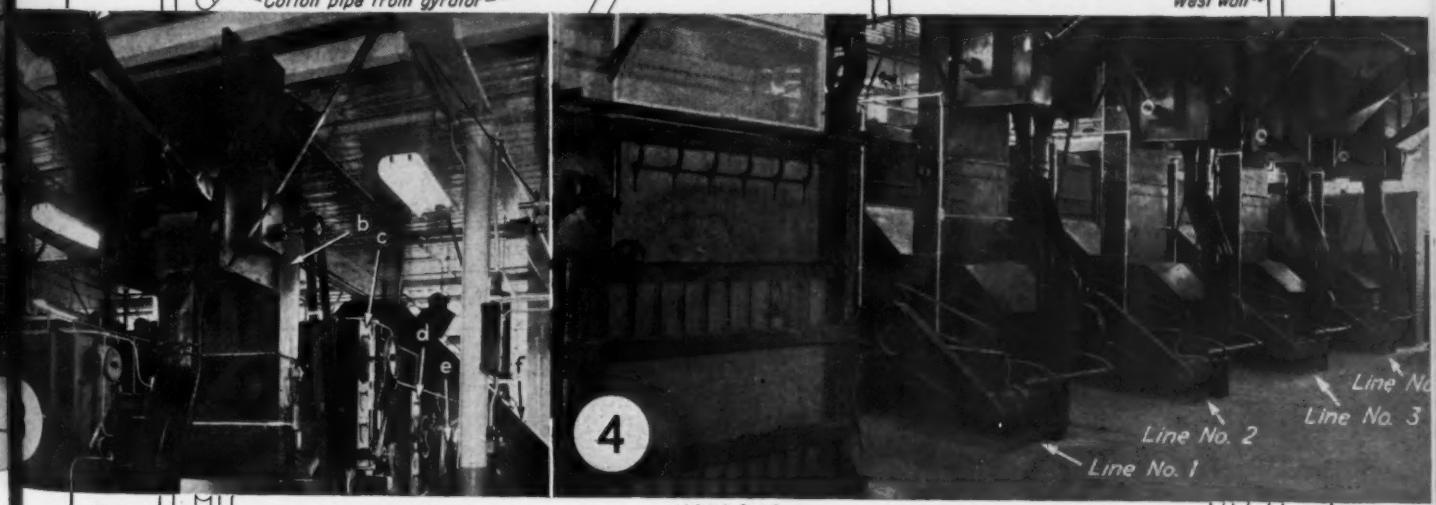


Fig. 2. *Blending feeders in opening lines Nos. 1 and 4. Note overhead pipes a, from feeder line No. 2, and b, from feeder line No. 3. The floor space in front of these feeders accommodates 100 flat bales or 120 compressed bales of cotton.*

Fig. 3. *Cotton from the blending feeders is delivered by overhead pipe a to the No. 11 condenser No. 12 opener unit b. A second condenser-opener unit c operates in tandem with the first unit and delivers the cotton to a third No. 11 condenser d. Vertical Superior cleaner e takes the stock from the third condenser and delivers it to an inclined gyrator similar to f. This opening line processes approximately 1,250 lb. of cotton per hr.*

Fig. 4. *The delivery pipes from the blending feeders and the first openers for all four lines are shown here. Note also the press, left, to which cotton that is to be dyed is delivered. The press is operated continuously when stock to be dyed is processed.*


South wall
Dust exhaust pipe
Horizontal gyrator
Motor
Motor
Motor
Motor
Inclined gyrator
Dust chimney
Inclined gyrator
Centrif. air mach. superior cleaner
Chute
No.11
No.12
No.11
No.12
No.11
Motor
Press with tramper
Lint slide
Pulley
Motor
Pump
Tramper
Cotton pipe from gyrator
Inclined gyrator
Dust exhaust pipe
Motor
Dust section pipe from bleeding feeders
Dust exhaust pipe
Dust fan
25-in. dust fan
Motor
Bleeding feeder
Aldrich feed table
Bleeding feeder
Cotton pipe from gyrator
West wall
Dust exhaust pipe
Bleeding feeder
Aldrich feed table
Bleeding feeder
Dust exhaust pipe
Motor
Dust fan
Motor
Dust fan
Inclined gyrator
Motor
North wall
Motor
Dust suction pipe from bleeding feeders
Dust suction pipe from bleeding feeders
Inclined gyrator


b
c
d
e
f
4
Line No. 3
Line No. 2
Line No. 1

INDIRECT LABOR
Can Be Accurately Controlled

HIGHLIGHTS: *Setting up figures can show supervisors allowable help for range of operating conditions—Bases should have approval of men who will use control systems—Method is applicable to control of other expenses.*

By TED H. GALLIER, *Chief Cost Accountant, Kendall Mills*

A SYSTEM OF COST CONTROL, to be adequate, must cover all phases of company operations. However, major emphasis should be placed on those phases in which the greatest potential return is available.

In most manufacturing industries, and certainly in the textile industry, the major manufacturing cost elements are direct material, direct labor and indirect or service labor. (Direct labor is here considered to be the wages paid to productive-machine operators only. All other plant employees are considered to be indirect labor.)

The steep upward trend of wage rates has directed attention more specifically to installing labor-saving devices, increasing productivity, and controlling essential labor costs. A great deal has been written and published on procedures and methods of control of direct costs, but proper balance of indirect costs is generally more difficult to maintain, particularly during changes in operating hours or production volume.

Considering only the factor of volume, prime costs can be governed as directly variable, with the exception of overtime or night-shift premiums, which may be treated as burden costs for distribution over the total production. On the other hand, the expense of indirect labor cannot be harnessed in direct ratio to the rate of activity. It is true that certain classifications of labor within this category are controllable on a strictly variable base with volume. However, other types constitute a virtually fixed charge at any volume above an extended shutdown.

Between these two extremes, additional employees are required as the production rate reaches certain positions or steps. This wide range in the degree of variability (directly variable, fixed, and semi-variable) is the factor that complicates any program of indirect labor budgeting, forecasting, or standardizing.

FACTORS TO CONSIDER. In the design of a program for the control of indirect labor, such management policies as the extent of current and cyclical maintenance, standard of housekeeping, and styles of production should be recognized and interpreted in addition to the factors of volume and hours of operation.

Each of these factors, changing independently, alters the balance and interrelationship of the elements of manufacturing expense. The program outlined here is designed primarily as an operating-expense gage for the supervisory force in running the individual departments on an economical basis and also as a control tool or yardstick of allowable expense within a fairly wide range of volumes and operating hours.

All other factors, such as those already mentioned, should be stabilized in order that a clear-cut procedure governed by volume changes can be completed. Independent programs can be worked out to gage the effect of loom-schedule changes, rate changes, maintenance policies, etc.

In a textile mill, the volume basis may be established on a number of independent but related factors, such as machine hours, direct-labor earnings or hours, physical output of yards or pounds, etc. Machine hours of the direct productive equipment is recommended as a logical vehicle for rating the production volume.

The selection of machine hours as the volume basis logically ties in with the generally accepted methods of direct-cost controls, production efficiencies, etc. The primary step then is the selection of a base rate of activity for the full machine hours of each productive department.

For example, a basic operating schedule of two 8-hr. shifts of five days a week may be selected as the base volume. Then, a related scale of operating hours is established to include each specific rate for which expense

1,000-LOOM MILL

Department	Direct Productive Machines in Place	Volume-Control Units at 100% (80-hr. wk.)
Picking	4 Pickers	320 Picker hours
Carding	106 Cards	8,480 Card hours
Drawing (Break & Fin.)	33 Frames of 6 deliveries	15,840 Delivery hours
Slubbers (Long Draft)	24 Frames of 120 spindles	230,400 Spindle hours
Spinning — Warp	90 Frames of 252 spindles	1,814,400 Spindle hours
Spinning — Filling	92 Frames of 252 spindles	1,854,720 Spindle hours
Spooling	2 Machines of 190 spindles	30,400 Spindle hours
Warping	2 Warpers	160 Warper hours
Slashing	4 Slashers	320 Slasher hours
Weaving	1000 Looms	80,000 Loom hours

Fig. 1. Above are basic departmental machinery layout and machine hours at the base activity rate for each cost center for a 1,000-loom cotton mill designed to produce gray sheeting.

VOLUME OF ACTIVITY

Departmental Control Units	Percent of Base Volume							
	80%	90%	100%	110%	120%	130%	140%	150%
Card Room (Slubber Spdl. Hrs.)	184,320	207,360	230,400	253,440	276,480	299,520	322,560	345,600
Spinning (1,000 Spinner Spdl. Hrs.)	2,935	3,302	3,669	4,036	4,403	4,770	5,137	5,504
Spooling & Warping (Spooler Spdl. Hrs.)	24,320	27,360	30,400	33,440	36,480	39,520	42,560	45,600
Slashing (Slasher Hours)	256	288	320	352	384	416	448	480
Weaving (Loom Hours)	64,000	72,000	80,000	88,000	96,000	104,000	112,000	120,000

Fig. 2. Range of activity below or above that shown here can be easily calculated if needed.

control may be required. Although any scale between zero and full around-the-clock operation may be outlined, a reasonable range may be stated as between 80% and 150% of the base volume in steps of 10% each.

NORMAL HOURS. The next step in the procedure is to determine the normal machine hours for each control center, or department, operating at base volume. For illustrative purposes, assume a medium-sized mill of 1,000 looms with balanced machinery for the production of gray sheeting as shown in Fig. 1.

In a mill of this size, some grouping of the departments may be advisable in the interest of efficiency, supervision, control, and relative amount of indirect labor involved. Thus, in the yarn-preparatory processes from opening through slubbers, the selection of a single productive unit such as slubber-frame spindle hours effectively can control all of the card-room indirect labor.

Care should be exercised in the selection of a unit which is balanced with other related processes and one through which all material is required to pass. Another prerequisite is that the supervision at the overseer level should cover both the productive machines and the labor organization of the combined departments. The operating control of spooling and warping also can be effectively combined.

At this stage, the cost-control centers are established, and the normal units at the base volume are calculated for each department. The next step is the determination of the productive units at each of the various selected levels of operation. The schedule of volume-control units at each level may be outlined as in Fig. 2.

NORMAL SCHEDULE. The final step is the layout of the normal indirect-labor wage schedule for each cost center and for each of the established control volumes. In this assignment, care should be exercised to record the fixed expense as such, the variable expense as nearly as possible in direct relation to volume, and the semi-variable with logical changes at the various rates of activity.

The labor schedule, to be most effective and to develop into a workable cost-control tool, should be drawn up jointly by the operating department overseer and a representative of the controller or budget staff. Before being adopted as the yardstick against which actual expenses will be measured, it

(Continued on page 268)

CARD ROOM INDIRECT LABOR

Overseer—fixed at all volumes within normal work week of 120 hr.

Second Hand—one required for each of second- and third-shift operations.

Section Men—two required for each full shift. Reduce one from 90 to 80%, add one at 120%, add one at 140%.

Card Grinders—three required at base volume. Add one at 130%, and reduce one to 90%.

Card Stripper—two required up to 130%, when one addition is needed.

Waste-Machine Tender—one required up to 140%. Then part-time additional help is needed. (Can double as oiler.)

Oiler—same as waste-machine tender.

Sweeper—one required for each shift or part of shift operating.

Fig. 3. Allowances for mill shown in Fig. 1. would be as shown here.

CARD ROOM INDIRECT-LABOR CONTROL SCHEDULE

184,320 to 345,600 Slubber Spindle Hours—80 to 150% Normal Volume

Employe Classification	Current Wage Rate	184,320 Spdl. Hr. 80% Normal		207,360 Spdl. Hr. 90% Normal		230,400 Spdl. Hr. 100% Normal		253,440 Spdl. Hr. 110% Normal		276,480 Spdl. Hr. 120% Normal		299,520 Spdl. Hr. 130% Normal		322,560 Spdl. Hr. 140% Normal		345,600 Spdl. Hr. 150% Normal	
		No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Overseer	$75.00/wk	1	$75.00	1	$75.00	1	$75.00	1	$75.00	1	$75.00	1	$75.00	1	$75.00	1	$75.00
Second Hand	50.00/wk	1	50.00	1	50.00	1	50.00	2	100.00	2	100.00	2	100.00	2	100.00	2	100.00
Section Men	.95/hr	3	114.00	4	152.00	4	152.00	4	152.00	5	190.00	5	190.00	6	228.00	6	228.00
Card Grinders	.93/hr	2	74.40	2	74.40	3	111.60	3	111.60	3	111.60	4	148.80	4	148.80	4	148.80
Card Stripper	.70/hr	2	56.00	2	56.00	2	56.00	2	56.00	2	56.00	3	84.00	3	84.00	3	84.00
Waste-Machine Tender	.68/hr	1	27.20	1	27.20	1	27.20	1	27.20	1	27.20	1	27.20	1.5	40.80	1.5	40.80
Oiler	.71/hr	1	28.40	1	28.40	1	28.40	1	28.40	1	28.40	1	28.40	1.5	42.60	1.5	42.60
Sweeper	.68/hr	2	54.40	2	54.40	2	54.40	3	81.60	3	81.60	3	81.60	3	81 60	3	81.60
Total	.....	13	479.40	14	517.40	15	554.60	17	631.80	18	669.80	20	735.00	22	800.80	22	800.80

Fig. 4. This summary for control of indirect labor in a card room can serve as a model for control schedules for other mill departments.

SPINNER'S TASK

HIGHLIGHTS: *Spinner's work loads are set by the basic 1-side method for any combination of "spin, clean, and doff" —Overseer adjusts work loads quickly by means of charts— Lack of proper method involves problems in production, labor, and cost.*

By F. H. GUNTHER and MARCUS GROSS

THE SPINNER'S TASK is the key job in the spinning room. Upon its success all other jobs depend. Sides must be run and cleaned, and yarn must be doffed speedily. Yet, many mills continue to operate spinning rooms without sufficient information to set up the spinner's task or work load, and the simple functions of spin, clean, and doff are assigned haphazardly in many cases and without regard for efficient operation.

With the installation of an important improvement (such as long draft) or of the newer spinning devices (such as Pneumafil cleaning, or new spindles or adapters), it is readily accepted that the overseer of spinning or the mill management should be able to compute the respective costs and merits of the proposed installations. Yet, every day in the year the average overseer of spinning is confronted with a similar, though smaller change of circumstances which requires accurate knowledge of his spinner's task. For example, he frequently has a change in yarn numbers which requires redistribution of the sides. Often he has to assign a special job of spinning and doffing on filling yarn. He cannot reassign these functions of spin, clean, and doff unless he has the basic information.

The lack of basic information and of a suitable system of procedure during these changes is one of the larger reasons for labor discontent, turnover, production loss, and increased costs. Obviously a guess on labor job-assignment, no matter how closely made, always returns to plague the guesser. He must continue to guess again and again without a proper file of information upon his previous guesses. Recently, one mill manager found that piece rates in use in his mill for many years had no record of entry except on the weekly payroll of the company. No one knew when or why the rates were established.

QUICK METHOD. Basic information such as that shown in the upper part of Fig. 1 simplifies the solution of spinner's work load. With it, the overseer can determine the work load of any combination of spinner's tasks, whether it is spin only, or spin and clean; or spin, clean, and doff. Time studies, or very close estimates, are necessary to establish the time involved by cleaning, doffing, creeling, and repairing end-breaks.

Beginning with Fig. 1, the overseer works out the basic data for a one-side basis. The time spent for the various tasks is computed for 40 hr. usually. In

Basic — FRAME LOAD 200 spindles — SPINNING 34s filling spin and clean — **1**
1-side, 40 hr.

Sides per Spinner 1 — Spindles per side 100 — Total spindles —

Ends down per M 55 (per side 100 spindles per hr.=5.5 — RPM. front roll 135

Lb. per spindle (#) 90% (0.99 lb.) — Wt. of roving 1.5 oz. (0.75 or 3/4 lb.)

Size of roving bobbins 8 x 4 — Wt. of yarn (0.09575 lb.) — Lb. per spinner 99 lb.

Doffs per spindle - 40 hr. 10.5 at 7 min. per side doff

Ends pieced - 40 hr. 40x5.4 = 140 per side — Roving bobbins creeled - 40 hr. 132, 1 side

MINUTES PER SPINNER

Piece ends	140 x 21 sec. = 2940 ÷ 60 = 49 min.	(49)
Creeling	132 x 15 sec. = 1980 ÷ 60 = 55 min.	(55)
Doffing	—	
Cleaning	95 min. per side (pro-rated)	(95)
Rest (10% of 40 hr.)		
TOTAL	Min. per side per 40 hr.	177 min.

Piece ends at 21 sec.
Change roving at 15 sec.

Sides per spinner
Total minutes Actual- no rest - 177 min.
Sides possible 10% — 12.2

1. *The basic task analysis of a spinner's work load includes all the information necessary to quick calculation of the number of sides which can be assigned to the spinner. Many overseers already have much of this information and need only to know how to apply it. If this is the case, the reader can begin with the actual application of the data, as shown in the latter part of Fig. 1. and labeled "Minutes Per Spinner." Note that data is on a 1-side basis. Data in the upper half of Fig. 1 may be readily obtained: Ends down per 1,000 spindle-hrs., for example, may be obtained by a minimum 4-hr. check of ends down in the spinning room. Weight of roving and yarn bobbins may be obtained by actual weighing (minus tare weights) or by calculation from the standard hanks-per-doff. Time studies, or very close estimates, must be used to determine the amount of time required by piecing ends, changing roving (creeling), doffing and cleaning. Under "Min. Per Spinner," the actual calculations begin. On this particular layout of 34s filling, the spinner pieces ends, creels, and cleans the frames. Consequently, the total time for the three functions is obtained. This total is 177 min. of actual work on 1 side for 40 hrs. To allow 10% rest, the number of minutes in 40 hr., 2400, is multiplied by 0.90. This results in 2160 actual working minutes in 40 hr. This figure divided by 177 gives the number of sides in the work load, 12.2. Number of sides assigned were 12.*

Can Be Set Quickly

the lower part of Fig. 1, the data is applied to a spinner's task which includes piecing ends, creeling, and cleaning. The results show that she can operate 12 sides. In Figs. 2, 3, and 4, the work loads for other combinations of the tasks, spin, clean, and doff, are shown.

The cleaning times include: brush and clean rings; pass passboard; clean side ring-rail; wipe bottom creel, beam, and trumpets; clean middle creel and top creel; clean and pick top rolls, middle rolls, back rolls; clean flat clearers, under the clearers, and the scavenger rolls.

As shown in Fig. 5, the information from the basic chart (Fig. 1) is transferred to the spinner's task form which serves as a permanent record for the assignment.

"Spin only" is usually construed to mean the piecing of ends and creeling of bobbins. It is worth noting that, where cleaning is done by special crews, the spinner's job involves more patrolling because of the additional number of sides attended. Mills have made special studies on this problem, and indications are that young, fast spinners are more successful on a spin-only assignment.

2. *Applying the same basic data as shown in Fig. 1., the overseer of spinning can adjust the spinner's work load quickly for a special assignment which includes only piecing ends and creeling, with no cleaning duties.*

3. *Occasionally the spinning room has special assignments which require the spinner to doff the frames, as well as spin. The calculation above shows the number of spindles which the spinner can operate on 34s filling.*

4. *The above spinner's task is worked out for an assignment which includes piecing ends, creeling, cleaning, and doffing. The number of spindles possible to run on this basis is 862.*

5. *Having determined the number of sides to assign the spinner on a spin-and-clean basis, the overseer has all the data from Fig. 1 transferred to the above spinner's task form. Note that all figures have been calculated to a 12-sides 40-hr. basis. To illustrate, the time for piecing ends now amounts to 588 min.; while that for piecing ends in the basic 1-side chart shown in Fig. 1 amounted to 49 min. Similar spinner's task forms should be filled out for all job assignments, so that permanent records will be available.*

2

Reference: Fig. 1 — MINUTES PER SPINNER — 34s filling Spin only

Piece ends	49 min.
Creeling	33 min.
Doffing	
Cleaning	
Rest (10% of 40 hr.)	
TOTAL	82 min.

Sides per spinner: 1
Total minutes: 82 (actual)
Sides possible: 10% rest- 26.34 (2634 spindles)

3

Reference: Fig. 1 — MINUTES PER SPINNER — 34s filling Spin and Doff

Piece ends	49 min.
Creeling	33 min.
Doffing	73.5 min.
Cleaning	-
Rest (10% of 40 hr.)	
TOTAL	155.5 min.

Sides per spinner: 1
Total minutes: 155.5 (actual)
Sides possible: 10% rest- 15.9 (1590 spindles)

4

Reference: Fig. 1 — MINUTES PER SPINNER — 34s filling Spin,Doff,Clean

Piece ends	49 min.
Creeling	33 min.
Doffing	10.5 doffs 1 side- 40 hr. at 7 min per doff- 73.5 min.
Cleaning	95 min.
Rest (10% of 40 hr.)	
TOTAL	250.5 min

Sides per spinner: 1
Total minutes: 250.5 (actual)
Sides possible: 10% rest-- 8.62 (862 spindles)

5

Spinner's Task 40 hr. — FRAME LOAD 200 spindles — SPINNING 34s filling spin and clean

Sides per Spinner 12 — Spindles per side 100 — Total spindles 1200

Ends down per M 35-- 3.5% per M — 1200 x 0.035 = 42 — RPM. front roll 135

Lb. per spindle (#) 90% (0.99 lb.) — Wt. of roving 12 oz. (0.75 or 3/4 lb.) 1.5 oz.

Size of roving bobbins 8x4 — Wt. of yarn (0.09375 lb.) — Lb. per spinner 1188 lb.

Doffs per spindle - 40 hr. 10.5 at 7 min. per side per doff

Ends pieced - 40 hr. 1680 — Roving bobbins creeled - 40 hr. 1584

MINUTES PER SPINNER

Piece ends	588 min.
Creeling	396 min.
Doffing	
Cleaning	1140 min.
Rest (10% of 40 hr.)	240 min.
TOTAL	2364 min.

Sides per spinner: 12
Total minutes: 2364 min.
Sides possible: 12.2 (spindles- 1220)

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RYERSON STEEL

EFFECTIVE TEMPERATURE
Influences Air-Conditioning

HIGHLIGHTS: *Refrigeration applied to air-conditioning makes possible desired minimum fluctuation of temperature and humidity—Effective temperature, which is combined effect of dry bulb, humidity, and air velocity on a human being, is a guide to selecting inside conditions—Experiments lead to conclusions on physiological reactions of workers—Call 80° F. effective temperature the highest for worker efficiency and comfort.*

By P. L. DAVIDSON, *Consulting Engineer, Greenville, S. C. and Philadelphia, Pa.*

Duct system for conditioning spinning room shown here has just been installed to supplant formerly used system. Windows on right have been bricked up to aid in stabilizing interior conditions.

TABLE I. Effective Temperature (Fahrenheit) at 15 to 25 Ft. per Min. Air Velocity.

75° ET			80° ET			85° ET			90° ET		
Dry Bulb (degrees F.)	Wet Bulb (degrees F.)	% R.H.	Dry Bulb (degrees F.)	Wet Bulb (degrees F.)	% R.H.	Dry Bulb (degrees F.)	Wet Bulb (degrees F.)	% R.H.	Dry Bulb (degrees F.)	Wet Bulb (degrees F.)	% R.H.
77.0	73.5	85	82.1	78.4	85	87.6	83.7	85	93.0	89.0	85
77.5	72.8	80	82.8	77.8	80	88.5	83.0	80	94.2	88.5	80
78.0	72.0	75	83.6	77.2	75	89.5	82.5	75	95.5	88.0	75
78.8	71.3	70	84.4	76.6	70	90.5	81.9	70	96.6	87.7	70
79.5	70.5	65	85.3	75.8	65	91.6	81.3	65	98.0	87.1	65
80.0	69.8	60	86.2	75.0	60	92.7	80.6	60	99.4	86.6	60
81.0	68.8	55	87.2	74.2	55	93.9	79.8	55	101.0	86.0	55

IN APPLYING REFRIGERATION to textile-mill air conditioning, engineers do not attempt to produce the temperatures associated with comfort cooling, but do succeed in maintenance of conditions which afford the best textile processing and sustained worker efficiency at a cost, both for purchase and operation, which is frequently less than that of conventional systems offering far less satisfactory mill conditions.

EVOLUTION OF HUMIDIFICATION. The early textile workers using cotton and wool fibers on hand-operated looms and spinning wheels found that they could produce the best yarns and fabrics with high humidities. It used to be accepted as a fact that no climate in the world rivaled the Bolton district in England and the Flanders district in Northern France for the manufacture of textiles.

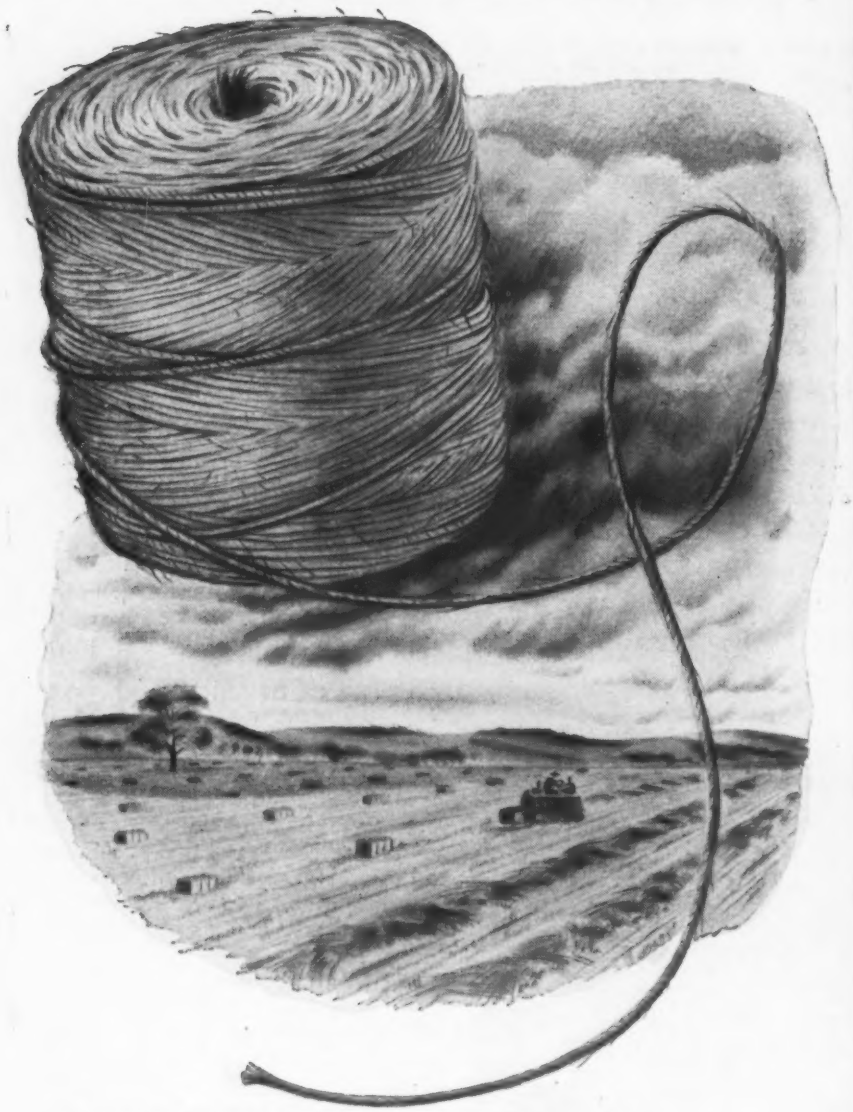
Even with the development of the first power-driven spinning machines and looms and the growth of the factory systems, the location of a mill in one of those areas was probably advantageous. However, as speed of the spinning machines and looms was increased, the additional heat caused by the increased power required to drive these machines necessitated artificial supplementation of humidity even in the mills in favorable areas.

Further increases in power liberated so much heat that spray heads as formerly installed not only could not maintain humidity but temperatures as high as 120° F. were not uncommon in spinning rooms. This led, in 1915, to the development of air-change systems using saturated air which were capable of appreciably reducing mill temperatures. The development of such air-change systems made it possible to manufacture textiles in any climate.

Since the maintenance of satisfactory mill conditions was becoming predominately a problem of controlling heat from machinery, it would conceivably have been more satisfactory

(Continued on page 248)

BINDING PROTECTION against mold and decay



DOWICIDES make cordage last

Many manufactured products used in farming—like other materials that must be protected from mold and decay—attest the preservative value of Dowicides.

Sisal twine, for example, is widely used in hay balers. And harsh sisal fibers must be lubricated with warm oil to twist properly in twine-making machines.

Dowicides, added to this cordage oil, protect the finished twine. For several years the Dowicides have been used successfully for this purpose.

Many kinds of fibers—cotton, jute, sisal, hemp—now receive Dowicide protection. And it's the same kind of protection that Dowicides give—to products and processing materials alike—in the paper, cordage, leather, paint, lumber and other industries hampered by mold, termites and bacteria. If these destroyers are your problem, ask Dow about Dowicides today.

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CHEMICAL COMMENTS

Dichlorodiphenyl Oxide Stops Attacks of Ambrosia Beetle in Green Lumber

Chemical control of Ambrosia (pin-hole) Beetles is offered by Dichlorodiphenyl Oxide. Attacks by the beetles, which bore into green timber and freshly sawed lumber of many hardwoods, are stopped by the chemical, and prolonged protection is given. An oil solution or a water emulsion may be applied to the freshly cut lumber with any type of hand or mechanically operated pressure sprayer. Since Dichlorodiphenyl Oxide mixes readily with inexpensive light oils of the kerosene range, and presents no handling difficulties, treating solutions are easily prepared locally.

Paints Made from Saran F-122 Latex, an Ingredient Forming a Tough Protective Film in Paint

The protection of a plastic film is afforded by water-base coatings made with Saran F-122 Latex . . . In this new Dow material, millions of particles bond themselves together to form a tough protective film, even on wet surfaces . . . coatings made with Saran F-122 Latex are superior to average paints in their resistance to moisture, grease, oils and chemicals . . . Applied with either brush or spray to wood, fibreboard, metal or masonry, they dry extremely fast into a long-enduring gloss finish . . . Paints containing Saran F-122 Latex are practical for both home and industrial use, particularly in the maintenance field.

Improved Ink Gloss Follows Sizing of Paper Surface with Methocel

Penetration of printing ink is minimized by a light coating of Methocel, and the gloss and brightness of inks or varnishes subsequently applied is noticeably improved. Applied as a surface sizing at the water boxes of the calendar stack, Methocel deposits a film possessing a high degree of adherence to paper or paperboard. And, on waxing stock, a light prime coat of Methocel greatly reduces the penetration of paraffin, and maintains the opacity and whiteness of the original stock.

50th Anniversary 1897·1947

DOW

CHEMICALS INDISPENSABLE
TO INDUSTRY AND AGRICULTURE

FIRE-RESISTANT AGENTS
Reduce Flame Danger in Cottons

HIGHLIGHTS: *Finishes work in different ways—Properly treated fabrics do not support combustion—Cellulose materials will decompose when raised above ignition temperature—Tests evaluate treated fabrics compared with untreated—Sample pillows show effects of burning cigarette.*

By ROBERT J. TAYLOR and MARGARET DISHMAN
Textile Div., Southern Research Institute, Birmingham, Ala.

DISASTROUS FIRES, such as the Normandie, Coconut Grove, Ringling Bro. Circus tent, and Winecoff Hotel, in which inflammable cotton and other cellulosic materials were contributing factors, if not the initiating factors in fire propagation, emphasize the need for more widespread production and use of fire-resistant textile items.

Fire-resistant construction of textile materials may be attained in a number of ways, among which are (1) the use of fire-retardant agents of both the non-durable and durable types on inflammable fibers, (2) blending of fire-resistant fibers with inflammable fibers, and (3) the use of fibers whose chemical constitution imparts fire-resistance.

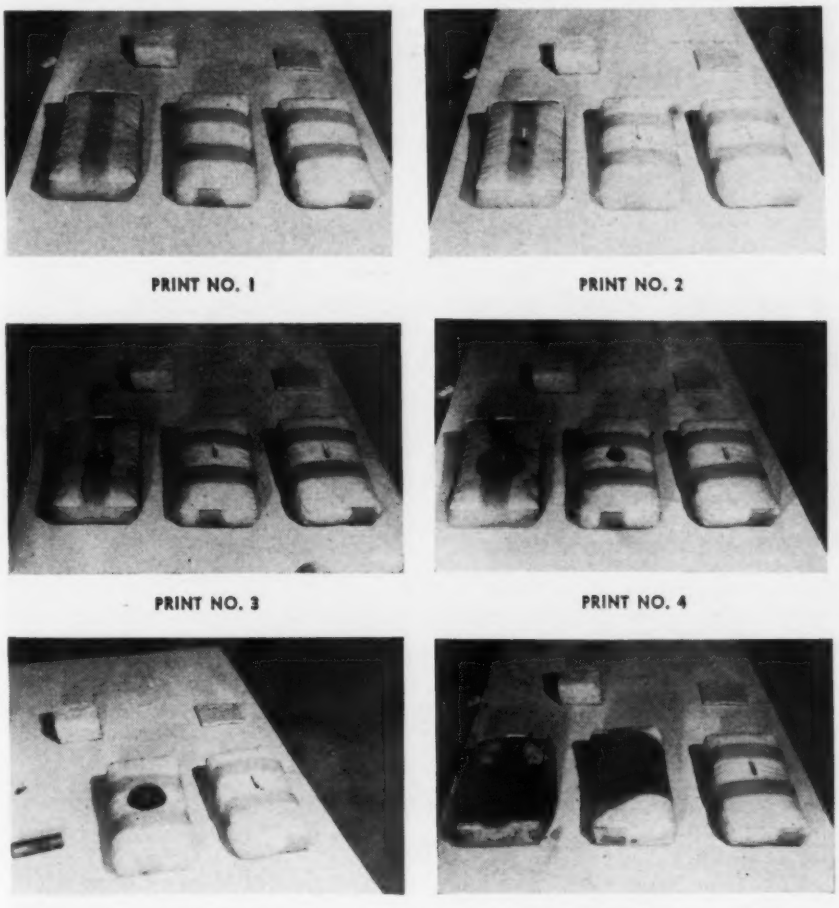

Fig. 1. Effect of burning cigarette on three prepared samples. Photographs were taken at 5-min. intervals.

FIRE-RETARDANT METHODS. Known fire-retardant agents may be roughly grouped in four classes according to their method of anchorage to the fiber, and hence their degree of permanency: (1) water-soluble agents which are usually applied by a one-bath process, (2) agents which are fixed on the textile by successive dippings in solutions which interact chemically and precipitate the fire-retardant agent on and within the fibers, (3) insoluble agents of the nature of flame-resistant waxes and resins with which the textile is coated, and (4) agents that react chemically with the fibers to add a fire-retardant constituent. These agents are believed to protect the fiber against flaming or afterglow or both, when subjected to ignition temperatures, by one or more of the following mechanisms: (1) production of non-flammable gases to dilute the flammable gases from the decomposing textile; (2) production of a glaze on the fiber surface which cuts off the oxygen supply; (3) loading the fiber to render it less susceptible to ignition and less able to propagate its own kindling temperature; (4) chemical effects which influence the course of the combustion reaction to produce less of the combustible gases and of the tarry decomposition products and to change the normal course of combustion of the charred residue. Recent work sponsored by the National Research Council for the Quartermaster Corps at Columbia University indicates that this last mechanism best explains the action of known fire-retardant agents.

Two different processes which impart permanent fire-resistance to inflammable fibers without altering adversely the other desirable properties of the textile material are available: Ban-Flame of Joseph Bancroft & Sons, Inc., Wilmington, Del., and Ellicote, of Ellicott Laboratories, Lawrenceville, N. J. A third process, which appears promising, apparently will be offered within a few months.

The Ban-Flame process involves treating the fabric or other textile construction with an aqueous solution of phosphoric acid or its ammonium salts containing a large excess of urea or certain other nitrogen compounds, drying the retardant mixture on the fi-

(Continued on page 268)

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A TEXTILE JOB
Is a Good Job

HIGHLIGHTS: *Pay scale in southern area exceeds that for "white-collar" workers—Vacations with pay are general rule—Good ventilation and safety measures protect workers — Housing facilities and nurseries often provided — Churches and schools supported—Food and refreshments available inside plants—Insurance benefits are numerous.*

By FRANCES S. LEWIS
Senior Interviewer, U.S.E.S., Rock Hill, S. C.

THE LAST 25 YEARS have seen marked advancement and expansion in the textile plants in the South. At one time, this section of the country depended on the cotton crop to furnish the necessary cash to carry on business. If this crop failed, as it sometimes did, the economic situation became very serious; and all businesses suffered. There were then few textile plants located in the South, except in the larger cities. Because of inadequate transportation facilities, jobs in this industry were available only to persons living in the immediate vicinity of these plants.

However, over the intervening period of time, the natural resources of the Southern states, the favorable climate, the potential supply of labor and various other advantages have attracted the attention of northern capitalists. Textile plants, large and small, have been located in Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. It is now the exception to find a town that does not have one or more textile plants. Automobiles and bus lines have made textile jobs available to persons living within a radius of 25 to 30 miles or more from the plant. This changed condition has brought prosperity to the entire area.

Let us look at the situation in York County, South Carolina. There are at present 22 textile plants in this area employing approximately 10,000 persons. These employees are engaged in spinning, weaving, knitting, dyeing, printing, and finishing cotton, nylon, and rayon goods. The end-products include knitting and weaving yarns, cotton materials varying in width and design, rayon woven dress goods, full-fashioned hosiery, and pile and shag rugs.

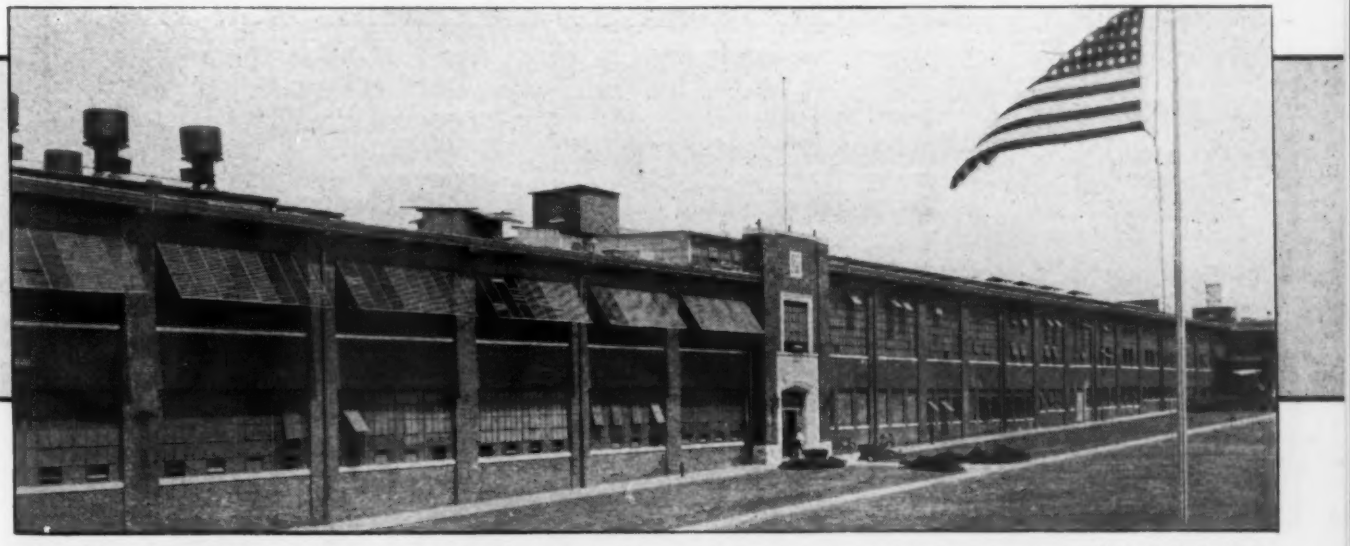
We who are so close to the textile industry can easily fail to realize that a textile job is a good job until that fact is pointed out to us by someone, such as the author of this article, who can see textile jobs related to others in the community.— EDITOR.

* * *

Plans are going forward for establishment of a large Celanese plant in the eastern part of the county which will employ between 4,000 and 5,000 persons when it begins operating. An employer from a neighboring state will at an early date begin operation in the Western part of the county of a plant weaving drapery material. This establishment will probably employ about 75 additional persons.

During the latter years of the period of growth and expansion of textile

(Continued on page 174)



An example of beautiful surroundings and good buildings in which to work is shown in this view of the main entrance of Rock Hill Printing & Finishing Co., Rock Hill, S. C.

Les Travaux de la Manufacture.
Printed fabric designed by J. B. Huet circa 1783 for Manufacture Royale de S.-D. Oberkampf, Jouy, France, showing phases in the manufacture of their printed cottons.
Courtesy Columbia University Library

RAPIDASE

FOR MODERN DESIZING

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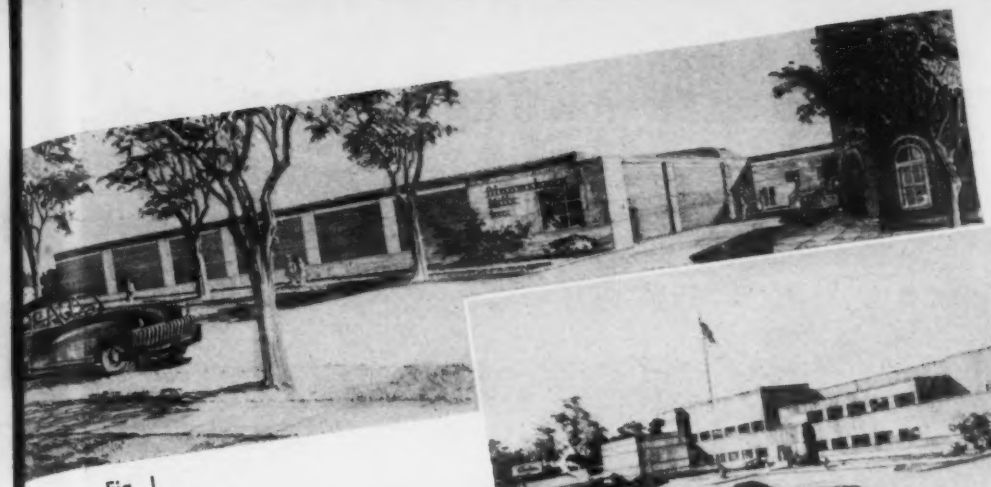


Fig. 1

Fig. 2

Functionalism Is Rule for MODERN MILL BUILDING

HIGHLIGHTS: *Purpose of mill building is to produce goods economically—Fluorescent lighting and air conditioning ushered in era of flat-roofed, simple construction—Preferred textile-mill floor is still wood, but laid on sub-base of stone and mastic—Function of wall in windowless building is not structural—Tendency is toward certain amount of prefabrication to reduce high field-labor costs.*

By L. VERNE LACEY

Lacey, Atherton, Wilson & Davis, Architects and Engineers

TO MOST PEOPLE, the term "modern architecture" means a particular style of architecture—an architecture without ornamentation and with plain surfaces, continuous windows, or no windows at all. Actually, modern architecture signifies a building that is adapted to present day needs or that directly accomplishes the purpose of providing shelter.

Modern architecture means more in relation to manufacturing than it does when referring to office of residential buildings; it means more because the change is more clearly evident, as the laws of economics are forcing the issue quickly to a logical conclusion. A manufacturing building exists for only one purpose, which is the same purpose as that of the machinery running in the building—i.e., to produce goods economically.

A great change, of course, has come about during the last 10 or 15 yr. through the development of fluorescent lighting and air conditioning. Just as the development of the gasoline engine brought about the automobile age, fluorescent lighting has made dependence on daylight in industrial buildings unnecessary. The ideal textile mill of 10 yr. ago was lighted by sawtooth skylights, and such lighting was considered to be indispensable. The construction was expensive, and the upkeep was high. The modern textile mill is flat roofed and embodies the simplest type of construction.

* * * * * *

The architect's drawings at the top of the page show two examples of new construction of the type discussed in this article. At right is the new nylon throwing mill being built by Duplan Corp. at Winston-Salem, N. C. It will have a one-floor clear working space of 182x468 ft. A projecting two-story wing provides employees' entrance, locker rooms, toilets, lunch room, and plant offices. Workers enter the second-floor corridor outside of the general work space and have access to departments in which they work without passing through other departments. Materials are received at the upper floor and are shipped from the lower floor. Building is completely air conditioned. Drawing at the left shows the new addition to Bloomsburg Mills, Inc., Bloomsburg, Pa., which will provide a 168x240 ft. increase to the existing mill. The new unit, which will house only looms, is windowless and air conditioned..

* * * * * *

INSULATION IMPORTANT. Because of the high and constant humidity required for most textile work, insulation is an important factor in preventing condensation. Insulation has long been used on roof decks, and it is now being used increasingly in walls. Windows in artificially lighted buildings are becoming useless; and, since they are another source of condensation, they are logically omitted. Thus, the modern textile mill, in addition to being flat roofed, is windowless.

Because of the necessity for a solid foundation for machinery, floors are usually on solid fill or on concrete framing. The cheapest floor is concrete with cement finish, but it is objectionable in some textile applications because of the hard working surface and conductivity of heat, vibration and moisture. Improvement has been effected by recessing the surfaces of aisles and utilizing asphalt mastic.

(Continued on page 186)

Cuba GETS REELISTIC ABOUT RAYON

To the riches that have made her known as "The Pearl of the Antilles" since the days of the Spanish Conquistadores, the sunny island to the south is adding a new source of wealth. A new plant, now under construction, will add rayon to the list of products that are creating industry for Cuba. And Compania Rayonera Cubana, the company behind this enterprise, is moving into the front rank of rayon producers at the very outset by utilizing the most up-to-date development in rayon manufacture—the Continuous Process.

Rayon "rides the reels" to be spun, washed, bleached, treated, dried and twisted in a continuous sequence of operations, by this revolutionary process developed and perfected by Industrial Rayon Corporation. With a minimum of handling, processing solutions are applied evenly to every inch of every filament to produce a yarn of maximum uniformity with a minimum of knots and broken filaments.

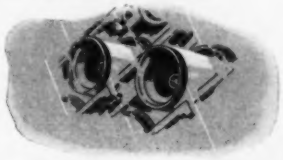
By the purchase in 1946 of the rights to manufacture rayon by the Continuous Process, Cuba joined a growing list of countries whose mills and consumers will enjoy the benefits of superior rayon yarn. Since 1938, when the Continuous Process was introduced, it has made continuous progress . . . and there is more to come.

INDUSTRIAL RAYON CORPORATION

CLEVELAND, OHIO • NEW YORK OFFICE: 500 FIFTH AVENUE

Makers of *SPUN-LO Rayon yarn and cloth • *TYRON Rayon yarn, cord and fabric

*Reg. U. S. Pat. Off.



BLEACHING-RANGE Efficiency Depends on Its Control Methods

HIGHLIGHTS: *Temperature controls on saturators, steaming units, and washers effect sizable savings in steam—Level controls on saturators maintain uniform concentration of chemicals—Uniform and known loading of squeeze rolls prevents carry-over—Instrument maintenance of desired temperatures and times in steaming units prevents chemical waste.*

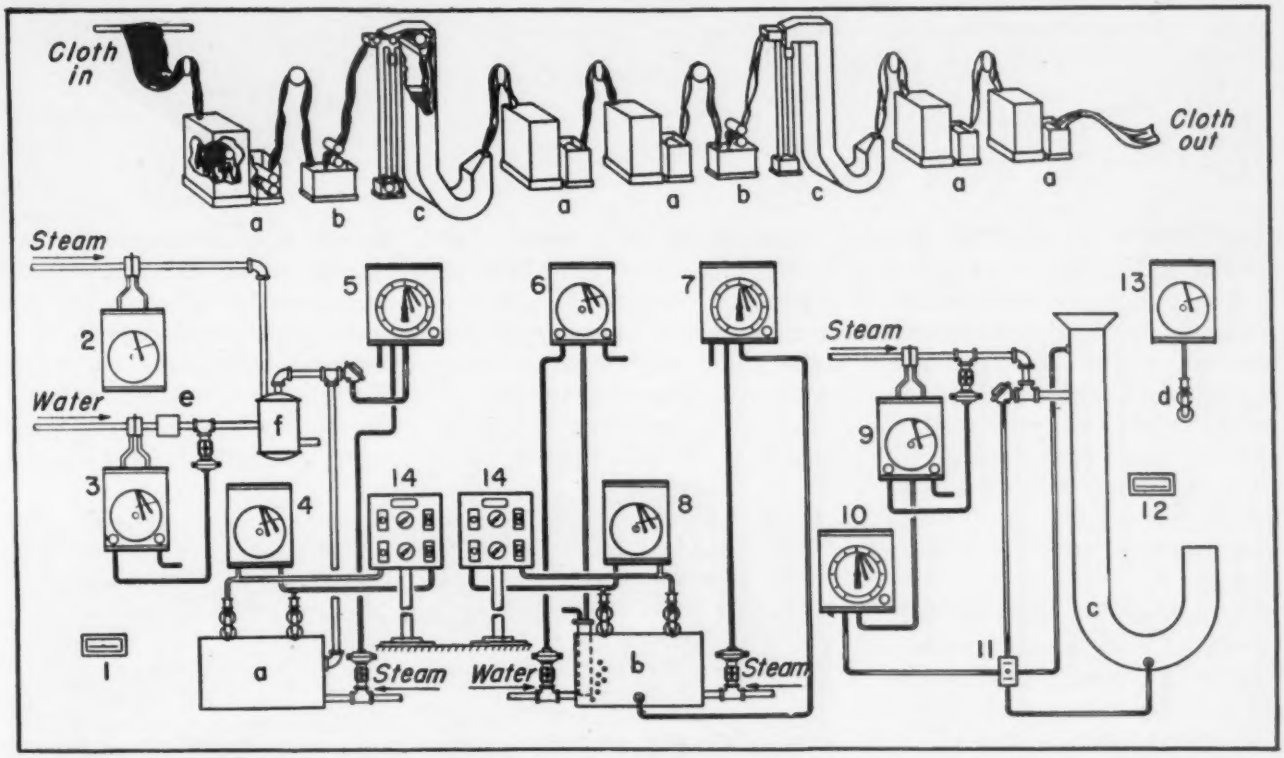
By E. A. MURPHY and R. POLLOCK
Brown Instrument Co., Philadelphia

THE MODERN high-speed preparation and bleaching range presents many time, temperature, and chemical-concentration problems. Control of these various factors is a "must"; otherwise, costly and inefficient operation results. Following is a discussion of present-day range instrumentation, designed to aid in obtaining optimum results from the range method of preparation.

Considering the basic function of the J-boxes (i.e., storage of the cloth for a specific time), the speed of the cloth entering each J-box is important to accomplish satisfactory results. The basis for speed-setting is the ratio between cloth speed and cloth weight, and an indicating tachometer is installed at each saturator. This phase of continuous-bleaching control is of particular importance where the construction of cloth processed varies widely or is changed frequently. From a centrally located control panel, the operator can observe the progress of the entire bleaching process and can tell at a glance what the temperature and flow conditions are at each stage. Through convenient finger-tip control, the system can be adjusted for full white or partial bleaching in order to secure uniformity of dye bottoms. Operating speeds have been increased to 190 yd. per min. on some installations, and equipment that will operate at 300 yd. per min. is now on order.

WASH-WATER FLOW CONTROL. Even when operating under optimum conditions, the washer is one of the bleachery's largest steam consumers. With a water flow of 100 gal. per min., a washer operating at 140° F. will require 4,638 lb. per hr. of saturated steam, if the supply water is at 50° F. Should this flow rise to 110 gal. per

(*Continued on page 166*)



Typical Continuous-Bleaching Control Arrangement—Equipment (a) Washer, (b) Saturator, (c) J-Box, (d) Final Squeezer (e) Heat Exchanger, (f) Heater. Instrumentation (1) Tachometer—Cloth In, (2) Steam-Flow Meter, (3) Water-Flow Controller (4) Squeeze-Pressure Recorder, (5) Temperature Controller, (6) Liquid-Level Controller, (7) Temperature Controller, (8) Squeezer-Pressure Recorder—B, (9) Steam-Flow Controller (not included for Dupont system), (10) Temperature Controller (positions steam valve direct in Dupont system), (11) Switch, (12) Tachometer—Cloth Out, (13) Squeezer-Pressure Recorder, (14) Special Control Station.

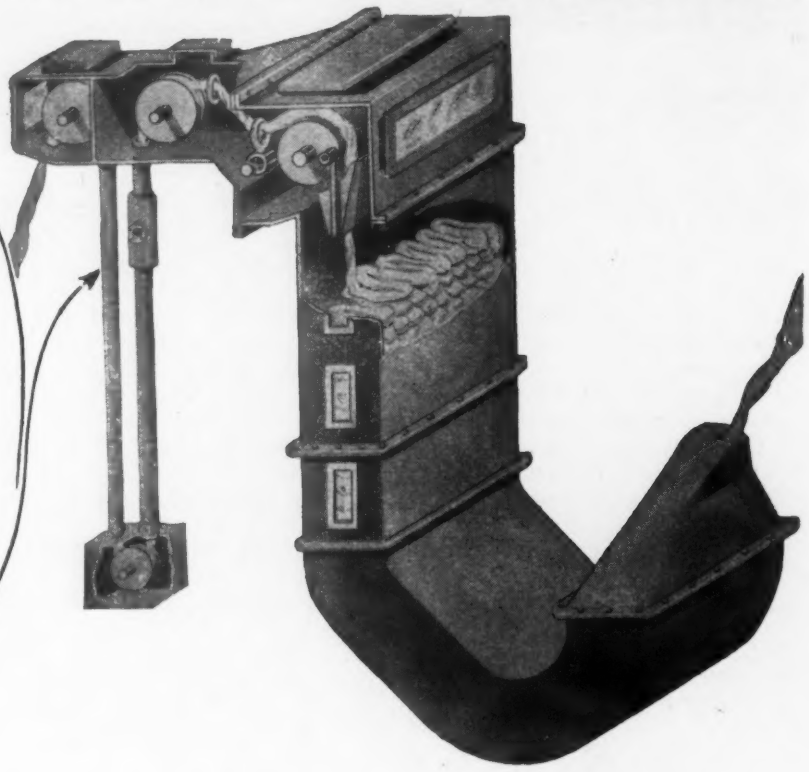
THE CLOTH HEATER

Exclusive Feature of

Du Pont Continuous Peroxide Bleaching System

ASSURES UNIFORM BLEACHING

THE DU PONT HEATER TUBE arrangement makes it possible to heat every yard of cloth uniformly.



EACH YARD OF CLOTH put through a Du Pont Continuous Unit is uniformly bleached, regardless of cloth weight or operating speed. It's the Du Pont Cloth Heater which assures this uniformity, for in it every yard of fabric is heated to the same temperature. Quite naturally, with uniform heating, you get the uniform bleaching needed for uniform dyeing.

This controlled bleaching makes it possible to bleach a wide variety of fabrics, including those containing vat and naphthol colors. There is no danger of marking off or bleeding, because all the processing is done under closely controlled conditions.

Installations at a number of leading bleacheries have been in continuous successful operation for many years. Other important mills have placed orders for Du Pont Continuous Systems.

Let us tell you more about these systems and how they can be used to meet your requirements. Technical advice on design, installation and operation of units to meet your specific requirements can be obtained by writing or calling: E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.

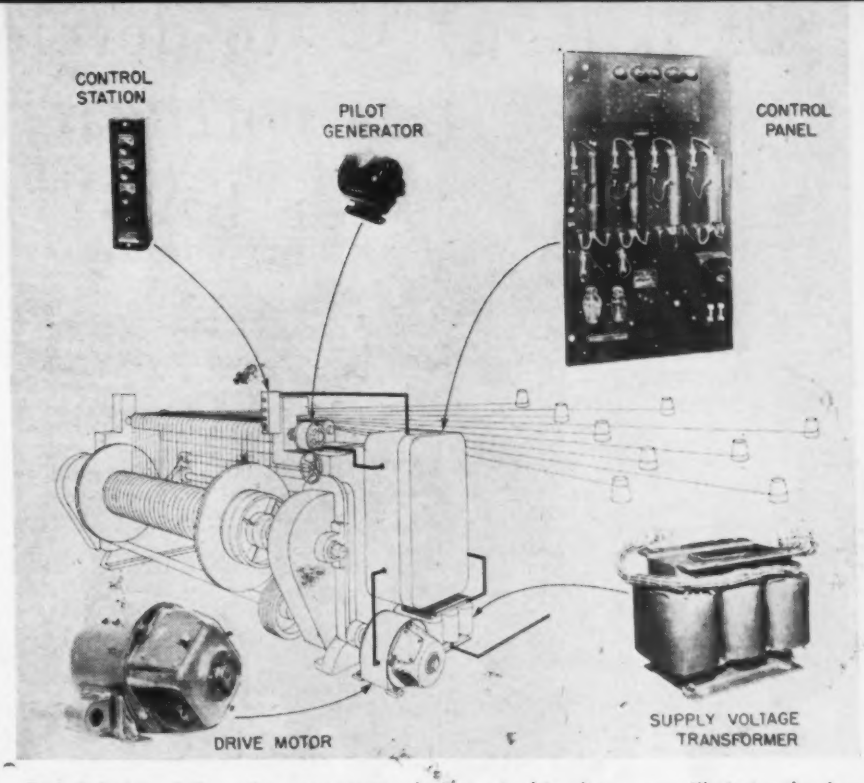
DU PONT CONTINUOUS PEROXIDE BLEACHING

BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY

DU PONT

ELECTRONIC WARPER DRIVE

Gives Constant Yarn Speed



Exploded view of the various components of electronic drive for warpers illustrates the simplicity of the mechanism and the compactness of the assembly. Constant yarn speed within 1% from empty to full beam, without use of presser or feeler rolls, is achieved.

HIGHLIGHTS: *New electronic warper drive, adaptable to all spindle-driven warpers, maintains constant yarn speed within 1% variation throughout building of beam—Wide range of speeds instantly available by simple manipulation of dial—System uses tachometer-generator driven by delivery roll to provide constant-speed signal, thus eliminating compress roll and danger of scuffing yarn.*

By R. J. DEMARTINI
Textile Application Engineer, General Electric Co.

IN THE WARPING of fine rayon and high-count cotton yarns, it is not sufficient that machine operators exercise special care in handling the yarn. The machine itself must be capable of automatic operation in accordance with existing standards. Close control of tension is important in the production of top-quality fabrics; and, as is the case with many other textile machines, wise selection of the motor drive is essential to the attainment of that objective.

An electronic drive (above) capable of satisfying exacting warping requirements has been developed and is now in successful operation. Designed around the Thy-mo-trol control, the new drive is adaptable to all spindle-driven beamers.

FEATURES OF DRIVE. With this drive, a range of yarn speeds to suit the needs of mills running a widely diversified line of products is available by simple manipulation of a dial. Once preset, linear speed is maintained automatically within an accuracy of less than 1%. Empty to full diameter ratios of more than one-to-four offer no problem; equipment required to accommodate higher ratios becomes progressively more expensive.

Provision is made for smooth acceleration at a controlled rate. A second dial is provided to permit preselecting the rate at which the drive is expected to accelerate to running speed for each type of yarn. Similarly, the rate of deceleration is smooth and at a controlled rate, and is accomplished by the use of electric (dynamic) braking. Means are provided to permit easy addition of solenoid braking as required on high-speed warpers.

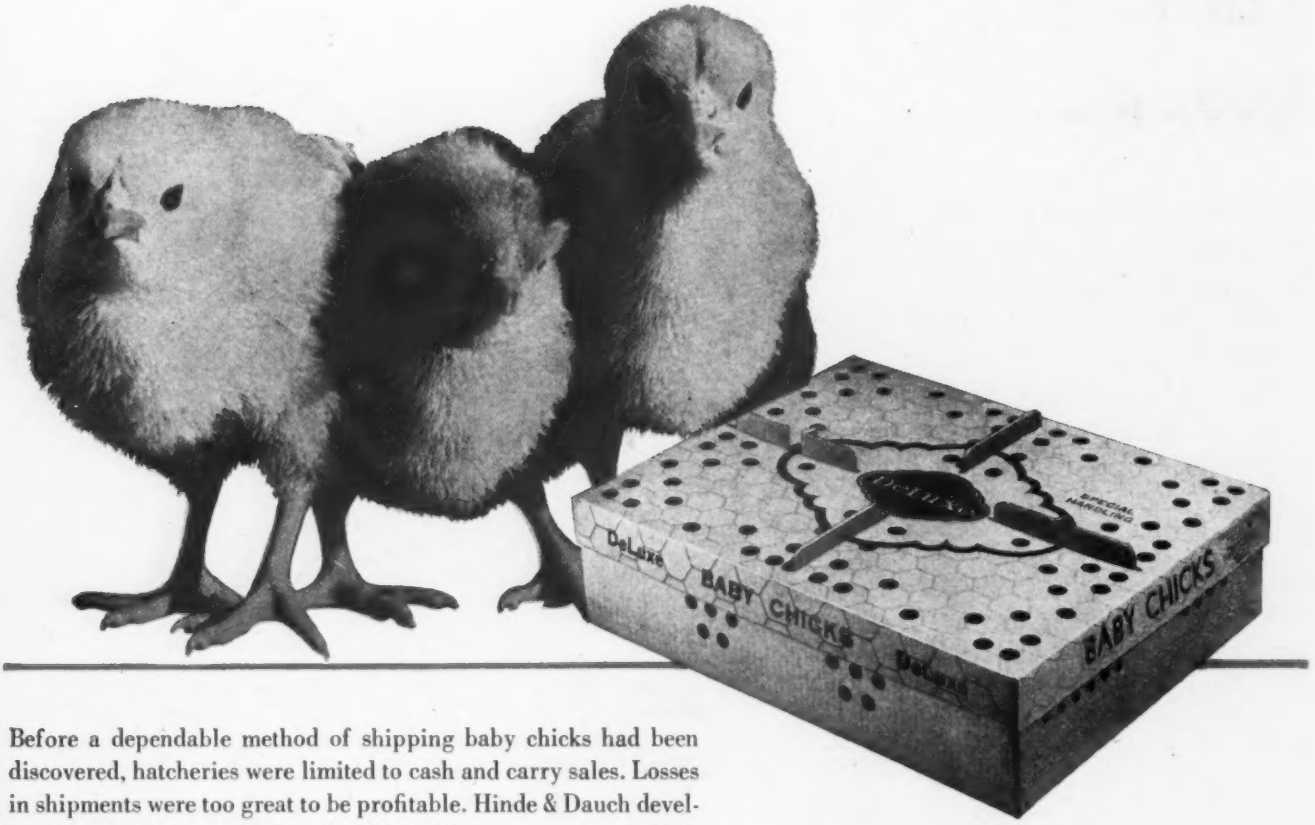
The drive may be inched in both forward and reverse directions. This feature is of value during the threading-up period and while the operator pieces up broken ends. Incorporated on the control panel is a relay for operation with the creel drop-wires in the stop-motion control. Furthermore, there is provided a source of low voltage for application to the drop-wire system. It is, therefore, unnecessary for the mill to purchase separately and install specially the usual low-voltage transformer and stop-motion relay.

In cases where a new drive is to be applied to an existing machine, this drive has an advantage over conventional adjustable-speed warper drives in that there is no motor-generator set or mechanical speed changer to take up floor space and add to the cost of installation. In addition, no special mechanical linkages and cams are required, as on rheostat and lever-controlled mechanical drives.

PRINCIPLE OF OPERATION. Yarn tension in a warper is determined by several factors: radial pressure on the yarn at the creel tension device; the drag over the surface of the cone as the end is drawn off; and windage, which manifests itself in the unwinding balloon and on the free-running yarn traveling from creel to beamer.

(*Continued on page 172*)

first to develop a corrugated box for BABY CHICKS



Before a dependable method of shipping baby chicks had been discovered, hatcheries were limited to cash and carry sales. Losses in shipments were too great to be profitable. Hinde & Dauch developed the first corrugated box for chicks. Response was immediate and sales rapidly increased. Today, hatcherymen ship day-old chicks across the continent in H & D chick boxes . . . *with little or no loss.* Many hatcherymen guarantee 100% "live delivery."

Hinde & Dauch's "firsts" in corrugated packaging have also aided the canned food, chinaware and glassware industries . . . the paint, furniture and allied trades. And, as other H & D "firsts" are developed, industry will continue to benefit through lower packaging and shipping costs, reduced loss from damage in transit, and from greater sales and economy in distribution. The Hinde & Dauch Paper Company, 4702 Decatur Street, Sandusky, Ohio.

LOOK TO
REG. U. S. PAT. OFF.
H&D
FOR PACKAGING
"firsts"

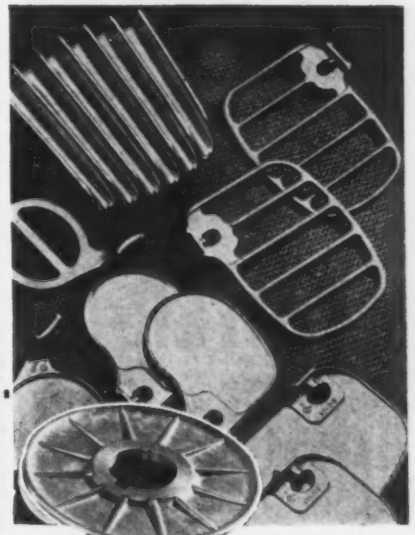
HINDE & DAUCH · *Authority on Packaging*

FACTORIES IN: Baltimore 13, Maryland • Buffalo 6, N. Y. • Chicago 32, Illinois • Cleveland 2, Ohio • Detroit 27, Michigan • Gloucester, N. J. • Hoboken, N.J. Kansas City 19, Kansas • Lenoir, N.C. • Montreal, Quebec • Richmond 12, Virginia • St. Louis 15, Missouri • Sandusky, Ohio • Toronto, Ontario • Watertown 72, Mass

ALUMINUM Has Many Uses In Textile Equipment

HIGHLIGHTS: *Machine designers are swinging away from massive, heavy construction—Workability of aluminum offers possibilities for wide variety of fabricating methods—Acid resistance of aluminum promotes its use in dyeing and finishing—Higher speeds of moving parts possible through use of light-weight metals—Non-magnetic characteristics of aluminum considered to be important.*

By **CHARLES BRAGLIO,** *Development Div., Aluminum Co. of America*



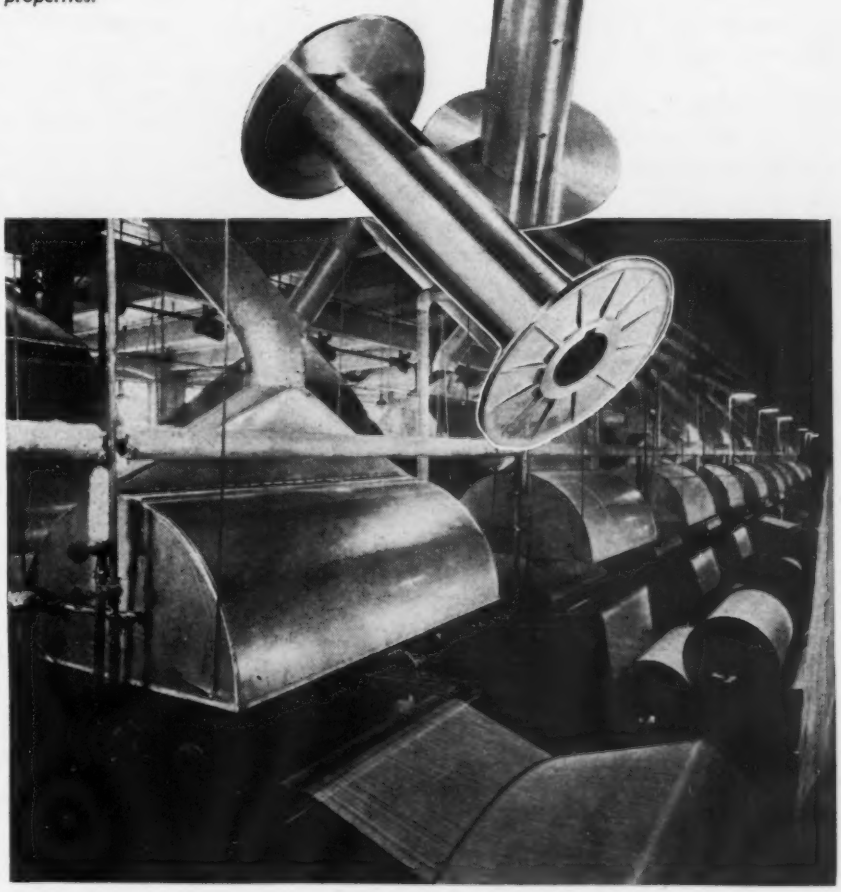
Aluminum separators (above, right) for spinning frames and twisters tend to promote smoother operation because of decreased load on ring rails. High-strength, light-weight warp beams (right) made of aluminum have good dimensional stability and non-magnetic properties.

IN RECENT YEARS, manufacturers of textile equipment and machinery have been turning more and more frequently to aluminum because of its freedom from rust or other deterioration, its strength, and its light weight; they have been attracted, too, because of the ease with which it can be fabricated, machined, assembled, and surface treated. Designers of equipment as well are swinging away from massive, heavy construction and are finding in aluminum a satisfactory means of combatting the inefficiency of accelerating heavy moving parts.

In aluminum and its alloys, the builder of textile equipment finds materials which can readily be cast, drawn, forged, or extruded. These metals maintain a high degree of ductility in combination with great strength, and they possess the important factor of weighing only about one-third as much as the materials normally used. Because of the inherent qualities of aluminum which prevent it from staining and which make it highly resistant to corrosion, its uses range from the tiniest of bobbins to large structural parts of the mill itself.

The value of aluminum to the textile industry is illustrated in the use of light-weight aluminum tubing for the rolls on cards. This permits a considerable saving in weight, gives greater operating efficiency, and allows greater ease in handling in the frequent removal of these rolls for cleaning and stripping. Aluminum alloys are also used for grids, dividing rollers,

(Continued on page 160)



Aluminum slasher hoods, such as these at Exposition Cotton Mills, Atlanta, Ga., are easy to keep clean.

Here's BIG NEWS about ALEMITE POWER LUBRICATION

1. Delivers pressures up to 5000 pounds per square inch.

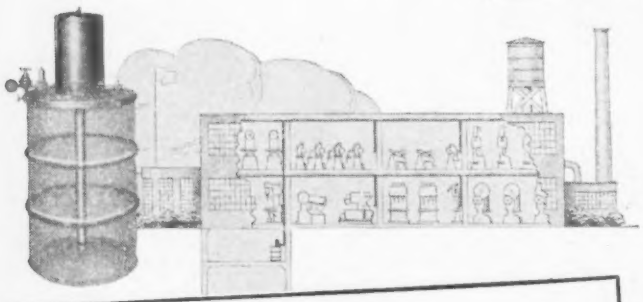
2. This surging pressure flushes and cleans bearings as it lubricates.

3. Fresh, clean lubricant forces out old lubricant, grit, dirt, moisture. Then seals the bearing against contamination.

4. The whole lubrication job is done with *Finger-Tip Control.*

MODEL 7180 . . . ALEMITE PORTABLE ELECTRIC POWER GUN

A 25-lb. capacity, high pressure grease gun. Heavy duty ⅓ h.p. electric motor. Just plug in and start greasing. It delivers fast, positive, high-pressure lubrication with all types lubricants that seek their own level in the container. Big, heavy duty rubber tires make it easy to move, even on rough floors or in close quarters. The unit comes equipped with 12-ft. electric cord, high pressure hose, and control valve with hydraulic coupling.



ALEMITE BARREL PUMPS

• Illustration above shows how Alemite air or electric operated pumps dispense lubricants directly from original drums. A single pump may be installed to deliver lubricant through pipe lines to convenient points throughout the plant. These barrel pumps handle fibrous, heavy or light bodied or fluid lubricants. Barrel pumps assure delivery of clean, moisture-free and lint-free lubricant, because lubricant is not exposed from barrel-to-bearing.

You Can Profit From These Advantages of Alemite Power Lubrication

- Eliminates handling and prevents contamination of lubricants.
- Provides instant surge of lubricant that flushes bearings of gritty grease, dirt and moisture.
- Assures maximum speed and efficiency in *handling* and *applying* all petroleum products.
- Delivers a measured single shot or a continuous flow of lubricant under pressure.
- Cuts lubrication time and costs wherever lubrication operations are so extensive that manual methods are found impractical.

POWER LUBRICATION Pays-for-Itself!

For details, contact your Alemite Jobber or, write Alemite, 1888 Diversey Parkway, Chicago 14, Illinois.

American Product of STEWART WARNER

ALEMITE

Alemite ALONE Combines all 3 in Lubrication

1. EQUIPMENT 2. PROCEDURES 3. LUBRICANTS

TEXTILE Equipment NEWS

Cleaner Wool Roping Produced By FIBER CONDITIONER

HIGHLIGHTS: *Burrs, chives, motes, and other foreign matter disintegrated and made easily removable—Applicable to all fibers—Initial application for use between breaker and finisher cards of wool set—Machine uses tension instead of crushing action.*

A NEW MACHINE for cleaning textile fibers, announced by B. F. Perkins & Son, Inc., Holyoke, Mass., is reported to utilize a radically new method which is simple in principle and highly effective in action. Burrs, chives, motes, animal refuse, and other vegetable or foreign matter commonly entangled in wool are all said to be readily disintegrated and made easily removable by the new machine which has been named the Perkins Fiber Conditioner.

Research and initial application of the new unit have been in the woolen field because woolen mills in America are confronted with processing a vast volume of unusually dirty wool, but the basic principle of the machine is such as to indicate practical application to other textile fibers which contain foreign matter. For example, leaf in cotton can be as easily disintegrated as can grass burrs in wool. For the immediate present, however, installations in woolen mills have been given priority.

The conditioner first reduces dirty wool to a gossamer-like web by using a special high-velocity slip-drawing or drafting technique by three pairs of rolls. This drafting not only exposes the foreign matter but also arranges or aligns the foreign matter so that it may be effectively disintegrated without injuring the wool fibers. The passage of the wool through the machine is a continuous high-speed operation. Immediately after the fine gossamer-like web has been formed, two dual-plane extenders quickly contact the web and apply tension to the exposed foreign matter, disintegrating it into a large number of minute pieces.

The first pair of extender rolls operates in a plane at right angles to the fiber length, applying tension by means of matching annular grooves in the rolls. The second pair of extenders operates in a plane parallel to the fiber length by means of flutes lengthwise of the rolls. The function of dual-plane extender action is first to divide the foreign matter by tension and bending into minute short pieces and then to split these short pieces into still smaller particles. Selective action by the dual-plane extenders is said to be highly practical because the dimensions of burrs, dried grass, and other impurities are many times greater than those of the wool fibers, which are very kinky and thus not adversely affected by extender action.

Important features of the fiber conditioner are summarized as follows:

The machine is precision built, and essential moving parts are made of special-alloy steels which are hardened and ground to exacting tolerances.

High speed of the unit affords maximum production with great compactness. As applied to the delivery end of a breaker card in a woolen mill, no additional floor space is necessary and the customary aisle is not encroached upon, it is claimed.

Precision-ground extenders are designed to apply bending and tension concurrently to burrs, dried grass stalks, etc., to produce instant disintegration without impairment of wool fibers. Basically, tension replaces compression or crushing action.

The conditioner is applied centrally at the delivery end of the breaker card. It is mounted vertically on a base

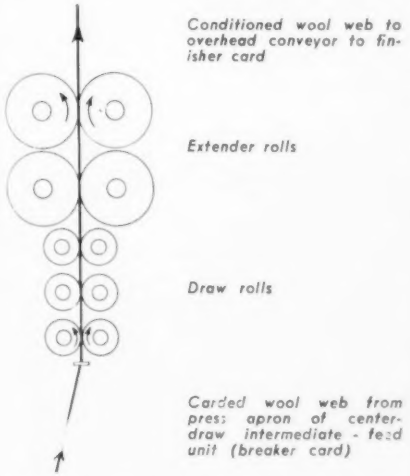

Conditioned wool web to overhead conveyor to finisher card
Extender rolls
Draw rolls
Carded wool web from press apron of center-draw intermediate - feed unit (breaker card)

Fig. 1. Fiber conditioner consists of five sets of rolls. First three sets of rolls apply drafting action to produce a gossamer-like web; last two pairs of rolls are extender rolls which disintegrate foreign matter by applying tension through meshing grooved surfaces.

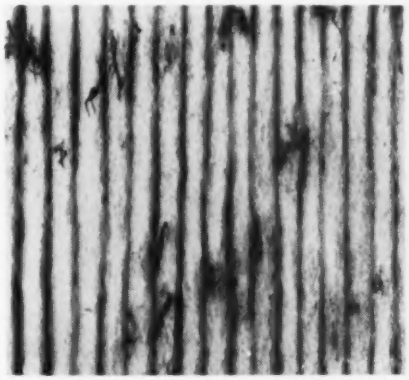


Fig. 2. This enlarged photograph shows strands of burry wool as taken directly from the tape condenser of a regular card which is not fitted with fiber conditioner.

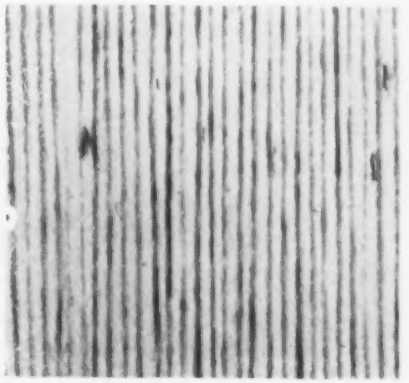


Fig. 3. Strands of wool taken from a card set equipped with fiber conditioner show great reduction in amount of foreign matter remaining in the roping.

integral with a shortened broad-band feed. It is driven from the breaker card and thus its speed is automatically synchronized. Power required is said to be negligible.

Delivery of conditioned web to finisher card reportedly produces a well-opened fleece, thus enhancing subsequent carding action and removal of disintegrated foreign-matter dust.

Ultimate cleanliness of wool treated by the conditioner is claimed to effect great savings in all subsequent processing operations. It is said to be physically impossible for burrs to pass through the conditioner without being minutely subdivided.

The cost of the conditioner will reputedly effect substantial savings in initial investment.

Improved quality will enable woolen mills to pay for the machines out of savings in a comparatively short time, it is stated.

Pneumatic Collector Replaces Scavenger Rolls on Spinning Frames

A pneumatic system for picking up and collecting ends down on spinning frames is being manufactured by Pneumafil Corp., Charlotte, N. C. The system first was perfected in Switzerland by Luwa S. A. The Pneumafil Corp. has acquired the patents and all manufacturing and sales rights for the U.S.A., Canada, Cuba, and Mexico.

The equipment consists primarily of a set of suction headers, called flutes, which take the place of bottom clearers or scavenger rolls; a collecting header; and a collector unit with fan and filter. The flutes are provided with orifices spaced to coincide with roll deliveries; they are connected to the collecting header which, fitted underneath the creel, passes to the collector unit, usually located at the end of the frame.

The Pneumafil system, operating on the pneumatic suction principle, is designed to remove free fly or lint from the yarn as it emerges from the front rolls; when there is an end down, the drafted roving leaving the front rolls is sucked into the corresponding orifice immediately and is conveyed pneumatically through the collecting header to the collector unit. Here it is accumulated and retained by the filter in the form of open, loose material ready for reprocessing.

When equipping a considerable number of frames or an entire spinning room, the Pneumafil central system is reported to be advantageous. Power consumption and first cost of the central system is less than that of the unit system. Air from the large system can be exhausted outside or can be returned to the room through air-conditioning or ventilating equipment. Better air conditioning is said to be made possible since room air is drawn at a uniform rate down through the frame and directly across the yarn as it is being spun.

The central system can be arranged to provide individual collection for each frame or central collection for a group of frames, it is stated. In the latter case, the collected material may be conveyed pneumatically directly to the picker room for reprocessing.

The overall advantages of Pneumafil are reported to be improved quality, greater production, and lower labor cost. Some of the specific advantages claimed for the system are:

The work of spinners and cleaners is reduced by elimination of scavenger rolls.

Ends down are reduced because there are no longer any ends down caused by other ends; thus, double threads are eliminated.

The work runs better because the salvaged cotton is re-usable without processing through a waste machine; thus, the fibers remain unbroken.

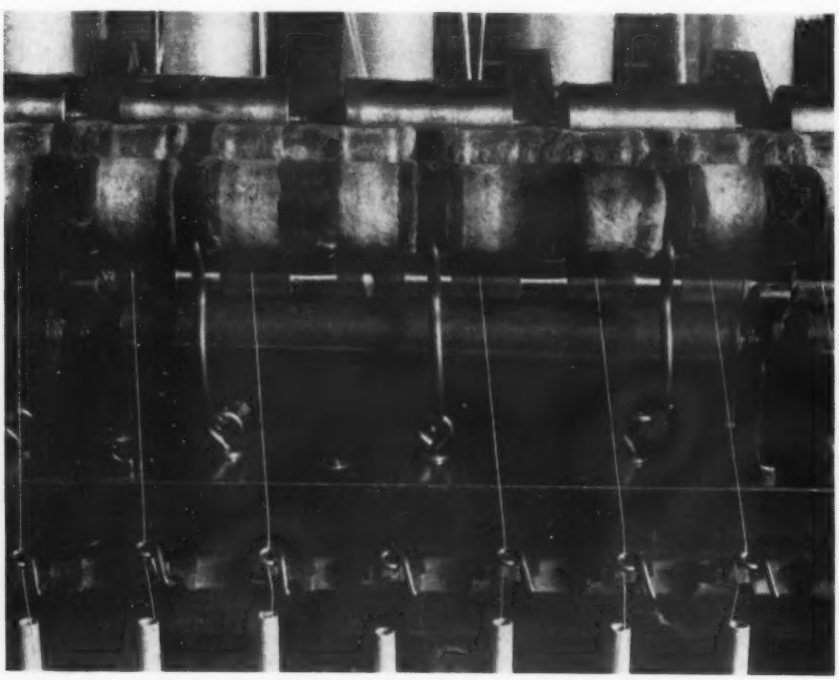
Training time of spinner learners is shortened and their spoilage of work is decreased.

Spinners like Pneumafil because their work is made simpler and easier; they experience less nervous strain and its resultant fatigue, and there are no "balled-up" sides.

Housekeeping and waste salvage are benefited.

Air conditions are improved when air-conditioning is combined with Pneumafil.

Gouts and slubs are decreased.



Pneumatic system is designed to collect loose lint emerging from front rolls and to suck broken ends into orifices, thus eliminating scavenger rolls. Waste is collected by filter and is said to be reusable without being run through waste machine. Inset shows orifice sucking in broken end. (Pneumafil)

Nylon-Plastic Traveler Permits Higher Speeds

A nylon-plastic traveler developed by the research laboratory of The Clark Thread Co., Newark 4, N. J., is reportedly being thoroughly tested commercially on a limited plant scale. The nylon traveler, covered by patents issued to W. M. Camp and assigned to The Clark Thread Co., is said to have many advantages in the spinning and twisting of cotton yarns, including possibly greatly increased spindle speeds and noticeably longer life of the traveler. Its suitability for handling various fibers is being tested to evaluate its place in the textile industry, preliminary to placing it on the market.

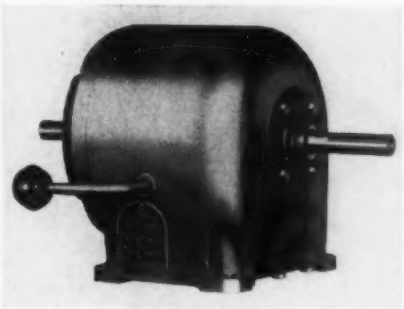
Fine Velon Filament Makes Soft-Hand Fabrics

A new, ultra-fine Velon-plastic filament has been developed and now is being used successfully in the weaving of soft-hand fabrics, it has been announced by Firestone Industrial Products Co., Akron, Ohio.

The finer filament will produce fabrics as soft as any yet made from extruded monofilaments, yet will have the stain-proof and fadeproof characteristics of Velon materials, it is stated.

Most Velon-filament production to date has been 8 and 12 mm. in diameter with a yardage of 4,000 to 8,000 per pound, it is reported; the new filament is only 5 mm. in diameter and has a yardage per pound of approximately 22,000.

Selective-Speed Drive Offers Four Gear Ratios



Selective-speed gearshift drive with gear ratios of 1 to 1, 1.33 to 1, 2 to 1, and 4 to 1 has unit-cast gear box to provide permanent alignment. (Lima Electric.)

A new selective-speed gearshift drive for machinery using ¼- to 1-hp. motors has been announced by Lima Electric Motor Co., 7045 Findlay Rd., Lima, Ohio. The new drive is identified as Type RD.

The drive is a 4-speed transmission with gear ratios of 1 to 1, 1.33 to 1, 2 to 1 and 4 to 1. These ratios are reported to be such that speed changes occur in even steps. A unit-cast gear box provides permanent alignment. Highly efficient gears and bearings lubricated by a permanent oil bath reportedly assure long, trouble-free service.

The shift lever is available in four optional positions. A conveniently located speed-selection chart facilitates selection of output speeds. The Type RD will operate in either direction of rotation.

Comparatively small in overall dimension, the unit is designed to be especially adaptable to application where mounting space is limited.

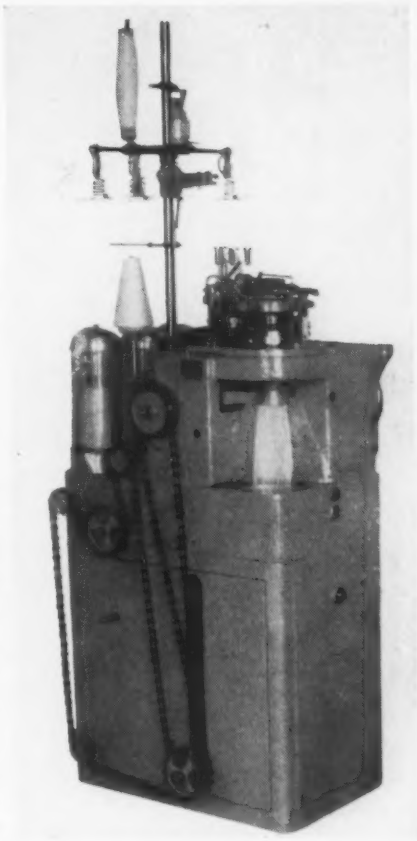
New 400-Needle Machine Knits Seam-Free Hose

A new electronically controlled seamless-hosiery machine has been announced by Fidelity Machine Co., 3908 Frankford Ave., Philadelphia. The new 400-needle machine is designed to start knitting at the top of a woman's stocking and to complete its cycle at the toe after producing a seam-free leg and foot. As the different points of the stocking construction are reached, the machine automatically introduces the various previously selected yarns and automatically changes to the speed preset for the various parts of the cycle.

The new machine has no belts or pulleys but is driven directly by a vertically mounted motor. Variation in speed is smooth and stepless over a wide range, achieved by means of electronic controls.

Stop motions, provided for yarns as well as needles, are reported to give instant stops without mechanical jar. The unit is said to be completely automatic, ejecting one stocking after another while requiring attention only to yarn supply.

The machine will be on exhibit and operating in the manufacturer's booth at the Knitting Arts Exhibition, Atlantic City, April 29 to May 2.



New 400-needle seamless-hosiery machine with electronic speed control automatically introduces welt and foot yarns. (Fidelity)

Freight Savings Pay for Expendable Paper Pallets

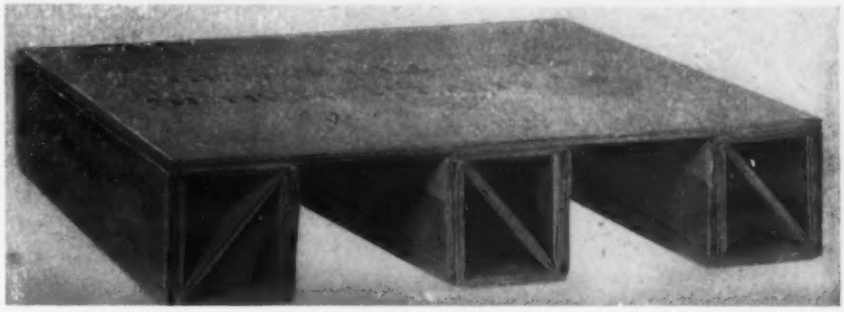
Expendable, corrugated cardboard pallets have been "paying their own way" at General Electric Co., Schenectady, N. Y. Lower shipping charges resulting from lighter weight, and the elimination of the cost of returning empty pallets, have more than compensated for the loss in discarding the paper pallets after a single trip.

The corrugated pallets weigh only about 12 lb. and cost $1.12 to make. Comparable figures for wood pallets of similar size are 90 lb. and about $3.

The pallets were designed by GE shipping specialists and accommodate static loads up to 7 tons. The average working load is about 2 tons. They are built to GE specifications by fabricators of standard corrugated items. Although intended for one-trip use, many of them have shown exceptional durability in continued use.

The basic design of the pallets consists of a flat corrugated sheet of stand-

(Continued on page 272)



Freight costs saved by light weight of cardboard pallets permit one-trip use. Pallets stood test of static load of 15,800 lb. (General Electric.)

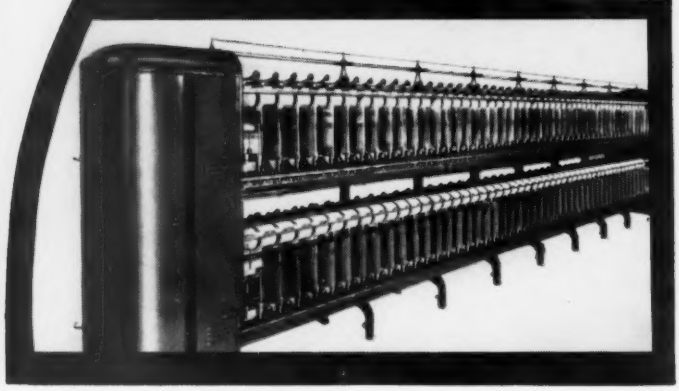
HERE ARE FOUR EXAMPLES OF "What's new in yarn

ATWOOD MODEL 110 UP-TWISTER

For bobbin or headless package uptwisting of silk or synthetic yarns.

1. High spindle speeds, from 6,500 to 10,500 RPM, depending upon the turns of twist per inch, and type, size and weight of package.

2. A bobbin hanger, in place of the conventional finger, results in better-built packages, and more accurately controlled thread lay, assuring less burnt yarn, less hard twist, fewer broken filaments, and more uniform conditioning.

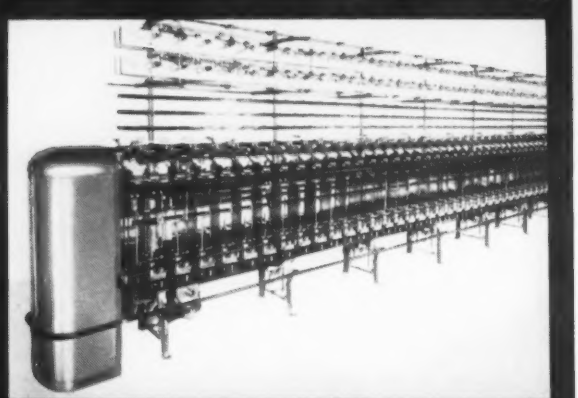


ATWOOD MODEL 10 RING TWISTER

For doubling and twisting all types of yarns.

1. Single, endless-belt drive assures constant spindle speeds throughout the entire machine.

2. An automatic stop motion eliminates yarn with a ply missing; eliminates roller laps and reduces dirty yarn and waste to a minimum.



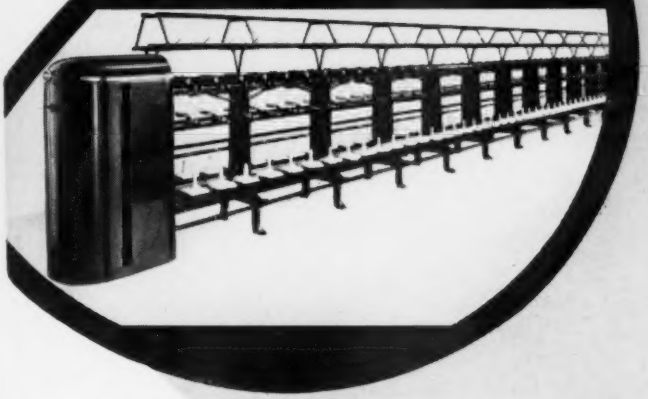
machinery"

ATWOOD MODEL 200 REDRAW

For redrawing from cakes, cones, tubes, pirns, bobbins, or skeins.

1. Variable speed main drive permits changing rate of production in a matter of seconds from 150 to 350 yards per minute simply by turning a small handwheel.

2. A quick-reading, yarn-speed-per-minute chart mounted on the machine makes all necessary calculations for you automatically



ATWOOD UTILITY TWISTER

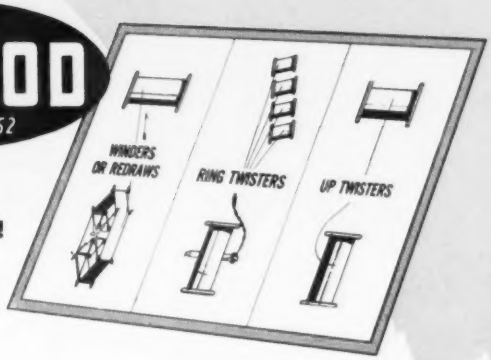
For high twists or fine denier sizes at maximum spindle speeds.

1. Spindles are mounted in a pivot swing which holds the spindle at proper pressure against the belt. This permits stopping any individual spindle without complicated clutches and brakes and without affecting the other spindles.

2. Other design features include: Sturdy cast iron construction; adequately shielded gearing; oilless metal bearings wherever practicable; accurately milled cast iron fingers with inexpensive, replaceable fiber insert bearing; and heavy grooved cams.

ATWOOD
SINCE 1852

What's new in yarn machinery!



Atwood's program of constant design improvement is what keeps units like these modern. Although the basic designs, proven in service, may not change rapidly; new Atwood features to improve quality and reduce costs are constantly being developed and incorporated.

Here are thumbnail descriptions of some of the features to be found in these four Atwood units at the moment.

This is only a small part of the story on each of these machines. You can get complete details quickly, by writing to Atwood. AD-15

ATWOOD DIVISION
FARREL-BIRMINGHAM COMPANY, INC.
STONINGTON, CONN.

PRODUCTS & PROCESSES

Nylon-Processing Oils Reduce End Breakage

FIBRLUB and SUNOTEX; Sun Oil Co., 1608 Walnut St., Philadelphia 3.

Two new nylon-processing oils announced by Sun Oil Co., are said to make possible sheerer and more durable hosiery.

The oils, discovered during research for a substitute for teaseed oil which was impossible to obtain during wartime, penetrate nylon threads and make them more plastic and flexible, it is stated, and make the threads smoother and less inclined to break when brushed against a rough object. The more flexible thread reportedly permits the knitter to obtain a more uniform stitch; use of the new products is said to permit greater production because of fewer broken ends.

Sunoco Fibrlub, a non-emulsifying coning oil, is applied by the throwster.

Sunotex oil, an emulsifiable trough oil applied by the knitter, contains a corrosion inhibitor to prevent water in the emulsion from corroding the needles of the knitting machine.

Moth-Control Process Uses DDT Compound

A process to prevent moth damage to clothes by impregnating them with DDT has been announced by the Whitemarsh Research Laboratories of the Pennsylvania Salt Mfg. Co. The process is designed for use in dry-cleaning establishments.

The new method, which thoroughly impregnates clothing with DDT reputedly without affecting the cloth in any way, involves a mixture of DDT and an adsorbent powder; a pump-percolator machine dissolves the DDT in just the right amount in the dry cleaning solvent. The machine sprays this solution into the extractor in such a way that it so thoroughly saturates the garments that, after drying, minute amounts of DDT are deposited on nearly every fiber, it is stated.

It was found that DDT applied by this Erustomoth process protects clothes from insect damage between even infrequent dry cleanings, it is reported, and that most of its strength is retained through a number of washings. One piece of wool, treated two years ago, still remains untouched by carpet beetles, it is said, although it has been kept enclosed with beetles most of this time.

Dyeing Assistant Improves Penetration

REXAN O; Textile Chemical Div., Dexter Chemical Corp., 819 Edgewater Rd., New York 50.

Rexan O, a dyeing assistant reported to promote level dyeing and improve penetration when used in dyeing cotton, viscose, acetate, and other fibers, has been announced by the Textile Chemical Div. of Dexter Chemical Corp. It is recommended for use in dyeing and stripping vat dyes and to protect dye baths from the effects of hard water.

Rexan O is a clear, viscous liquid readily soluble in cold and warm water; it keeps lime soap or other precipitations in a dispersed condition; it is claimed to be especially helpful in padding piece goods where certain dye combinations tend to give unlevel results. Its retarding action is claimed to reduce the bronziness and poor rubbing fastness often encountered when dyeing basic dyes.

Vinylite-Resin Finish Helps Nylon Appearance

AHCO 1250; Arnold, Hoffman & Co., 55 Canal St., Providence 1, R. I.

AHCO 1250, a new vinylite-resin finish for nylon hosiery developed by Arnold, Hoffman & Co., is an emulsion that can be applied easily with standard finishing equipment and in the same manner as ordinary finishes, it is stated.

When used in recommended proportions, AHCO 1250 is said to impart increased snag-resistance and an improved appearance; dullness is accomplished as required, and a superior hand is obtained, it is reported.

According to the manufacturer, there is no toxicity or inflammability risk incurred by the use of AHCO 1250; it is long-lasting and will not wash off during the average life of nylon hose; and its use effects an appreciable reduction in irregulars due to handling.

Floor Maintenance Begins With Cleaning

Unclean floors bear a definite relationship to mill-operating costs, according to information released by Oakite Products, Inc. This fact applies particularly to traffic areas where oil or grease is spilled or is permitted to leak from bearings. Boxes or trucks running over such oil or grease will cause it to become packed until it forms a coat on the floor or runway. Eventually, the removal of this coat will pose a major cleaning and refinishing job.

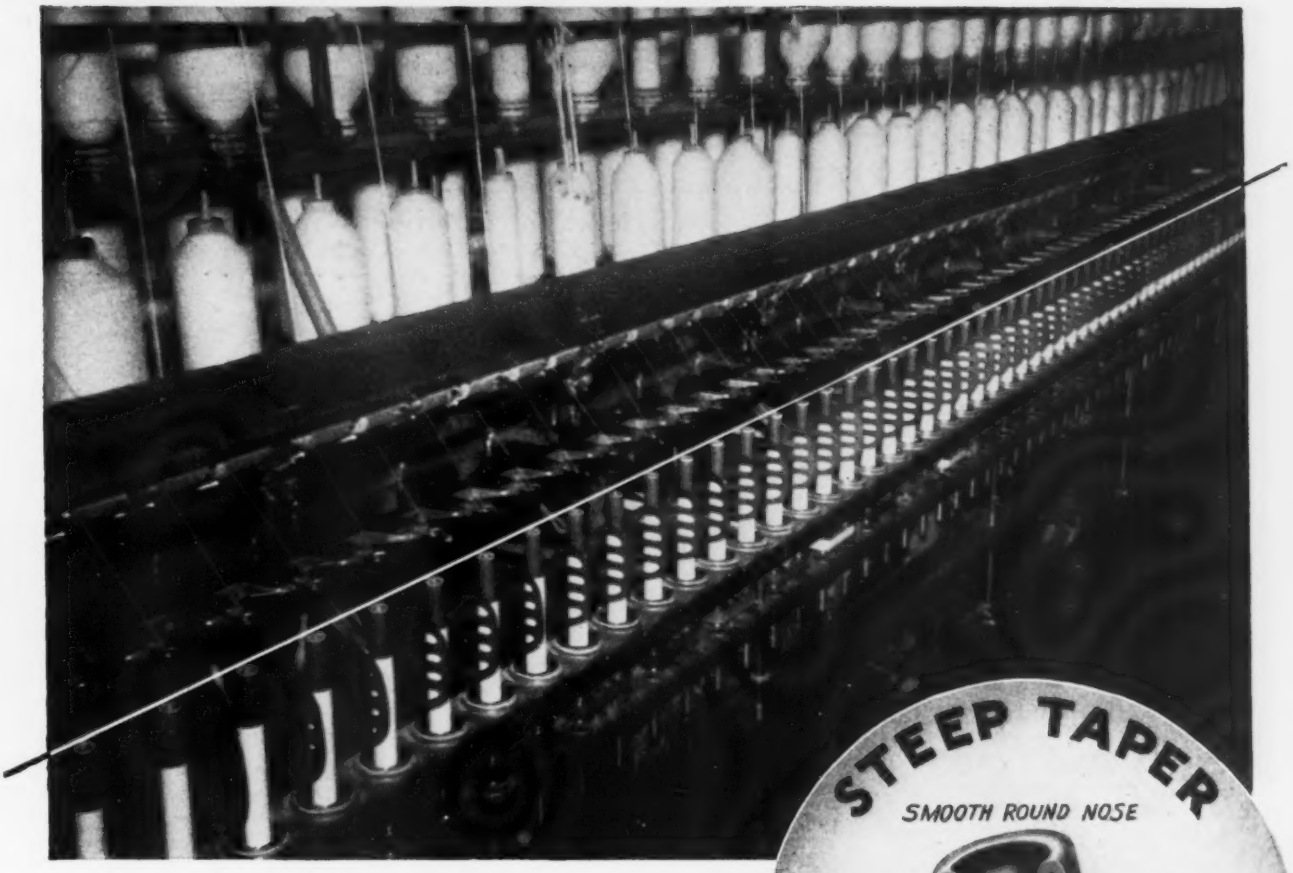
Much of the expense involved in such a cleaning job, and much of the accident hazard such a neglected floor creates, can be avoided by following a regular program of floor cleaning.

Most mills clean floors regularly in the mill proper, but in many instances much-used surfaces may be neglected. Floors in machine shops, compressor rooms, boiler rooms, dye rooms, loading platforms, freight runways, etc., frequently are allowed to become coated with dirt, oil, chemicals, or other material.

Periodic cleaning with a hot alkaline solution, applied with a brush or mop, is usually sufficient to clean most floors in and around a mill. If a coat of dirt and other material has been built up, it may be desirable to apply the cleaning solution and permit it to soak for a short while. If the floor has been neglected for a considerable length of time, it may be necessary to use a stronger solution and permit a longer soaking period.

In areas where an unusually large amount of oil gets on the floor—such as around twisters or around cards with leaking comb boxes—it is often helpful to use an oil absorbent. Such a material, usually in the form of granules, absorbs oil and grease that otherwise would be tracked over the floor in adjacent areas.

LEVEL-RUNNING



SONOCO

STRAIGHT SIDE WARP SPINNING BOBBIN

The spindle fits the "cushion grip" with a gentle squeeze—to form top-drive contact . . . which breaks sharp and easy without drag or pull in doffing.

The secret of *Level-Running* is in the "Steep-Taper Cushion-Grip" feature of the SONOCO Straight-Side Warp Spinning Bobbin.

The "secret" of more yarn per spindle and longer time between doffs is in maintaining a *full traverse* uniformly. . . The dependable "level-running" of the SONOCO Bobbin permits *full traverse* winding.

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN

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PAPER CARRIERS

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Kinks AND SHORT-CUTS

★ **SAVINGS BOND PRIZE FOR APRIL**
(February Contest)

A $25 SAVINGS BOND FOR YOUR IDEA

A $25 Savings Bonds will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contribution must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production, in brief any little device, stunt, kink, or short-cut which you have tried out in your own mill which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operation. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any item submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Please advise whether your name may be used with the kink.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

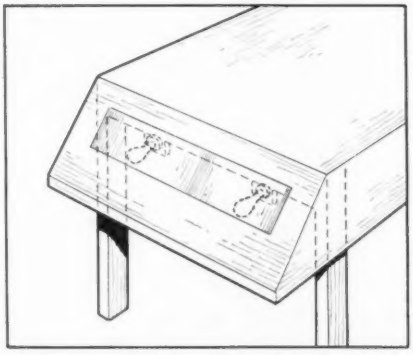
Reverse-Side Lighting Aids Inspectors and Menders

Adequate light is essential to proper cloth inspecting or mending. The usual arrangement for lighting the inspecting or mending area consists of a light located above the cloth. A better method is to light the cloth from underneath at the critical area, especially for mending.

The mending perch shown in the accompanying sketch is equipped for such lighting. To make a similar arrangement, saw out a rectangular hole in the slanting end of the perch. This hole should be as long as the widest fabric run on the perch and about 6 or 8 in. in depth.

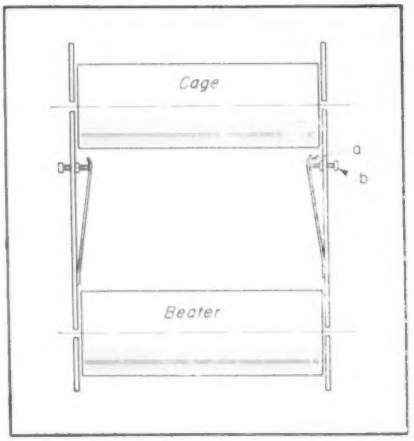
Cover this hole with a piece of plate glass or a piece of ordinary window glass. Install two or more light-bulb sockets in such a position that bulbs screwed into the sockets will be directly beneath the glass panel of the perch. Current for these bulbs may be provided through an extension cord running to a convenient outlet plug.

As cloth is pulled over this lighted area, defects will be shown more clearly than by overhead lighting. *(K-633) H. Jacoby, Elizabeth, N. J.*



Lighting the critical area of an inspecting table or a mending perch from underneath makes cloth defects easier to find. Such a lighting arrangement can be made by sawing out a rectangular hole in the wooden table, replacing the wood with glass, and installing lights beneath the glass.

Feed-Guide Plates Useful in Formation of Picker Lap



Synthetic-fiber stock sometimes does not feed as evenly from the picker beater to the cage section as does cotton stock. Faulty laps result. This condition can be corrected by installing guide plates a between the beater and the screen. The plates can be adjusted with screws b.

A frequent fault in laps made on the picker is the appearance of a bulge in the middle of the lap. Of course, faulty loggerheads or a bent lap pin can cause such an uneven appearance of the lap; but, more often, the trouble lies in uneven feeding over the width of the cage sections from the picker beaters.

This condition occurs more often when synthetic fibers are being run than when cotton is being run. A more regular distribution of fiber over the width of the screen can be obtained by the use of feed-guide plates similar to those shown in the accompanying sketch.

Usually, feeding is heavier at each end of the screen than in the middle; and the bulge in the center of the lap is caused by the stock at that point being compressed less than the stock at each end of the lap.

To correct this condition, install

Made of
Durene®
multi-ply mercerized combed cotton yarn
4 WAYS BETTER
than ordinary cotton yarns
EXTRA COMFORT
---more absorbent
EXTRA STRENGTH
---longer wear
EXTRA QUALITY
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you find smart, active women
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KINKS & SHORT-CUTS
(Continued from page 132)

plate a on each side of the picker between the beater and the screen. The plates should be made of a flexible material, such as spring steel or aluminum; or some pivot arrangement should be provided at the points at which the plates are bolted to the sides of the picker. Such an arrangement or material is necessary so that fine adjustment to the feed can be made with setscrews *b*. *(K-648) German Technical Report "Denkendorf Lehrspinnerei"*

Half-Hose Knitters Should Try Soluble Yarn

Half-hose knitters now knitting socks with or without a draw-thread mechanism for separating the socks would do well to investigate the possibility of using a soluble yarn, such as some of the alginate rayons, for joining the hose.

If a few courses of the soluble yarn were used to join two socks, the socks could be cut apart at this point and the soluble yarn washed out. Thus, the individual hose would be left with clean welts.

When soluble yarn becomes more plentiful, this method of joining socks undoubtedly will prove advantageous from the standpoint of quality and labor. *(K-643)*

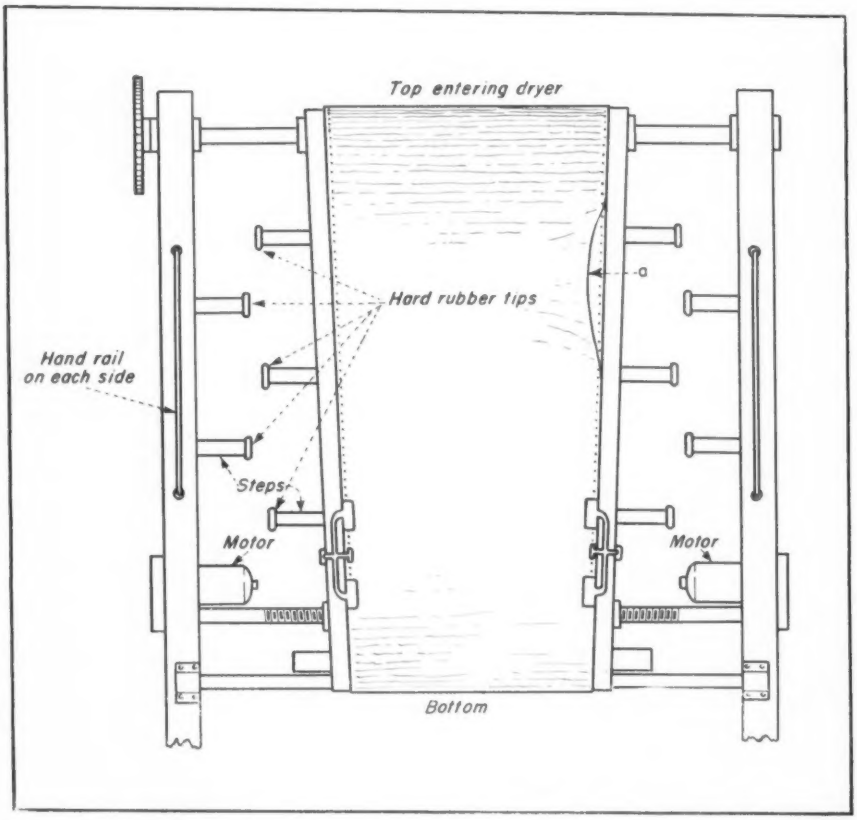
Pin-Dryer Operator Builds Ladder on Machine

Frequently, cloth running on a pin dryer pulls off the pins, as shown at a in the accompany sketch. When this occurs, it is necessary for the operator to climb up the machine and put the cloth back on the pins. Usually, there is no stepladder convenient, and the operator must lose time in going for one.

To avoid such loss of time, why not install a ladder on each side of the machine?

Two-inch angle iron can be used for making these ladders. Cut the pieces of iron 6 in. long, and weld one end of each piece to the framework of the machine, placing the steps as indicated in the sketch. On the outside ends of the steps, place hard rubber tips so that the corners of the angle iron will not present an accident hazard.

A handrail should be added to each side of the machine, as indicated, so that climbing the ladders will be facilitated. *(K-621)*



If steps and handrails are installed on a pin dryer, the operator will have a means of climbing up the machine to replace cloth on the pins when it becomes detached, as at **a**. *Such an installation will save the time usually lost in hunting a stepladder.*

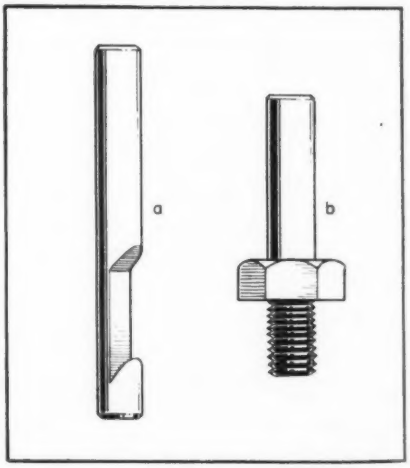
Tools Aid in Replacing Damaged Ferrules

In throwing plants, an important job is that of replacing damaged ferrules in the winder-spinner bobbins. Yarn is wound on these bobbins in the winding department and spun from the bobbins by means of flyers. The ferrules, inserted in the tops of the bobbins, hold the flyers in place during the spinning process.

Frequently, the ferrules in the bobbins become damaged by rough handling, such as bumping them against objects or dropping heavy objects on them. Bent ferrules cause uneven tension on the yarn while it is being spun.

Removing a bent ferrule and replacing it with a new one is an undesirable job unless proper tools are available. The hook and pin shown in the accompanying sketch, when used with a drill press, afford a rapid means for replacing ferrules.

Hook a is made from a short piece of steel rod. File one end of the rod into a notch, as shown in the sketch. Pin *b* can be made from a short length of the same piece of rod. The lower end of the pin should be threaded to take a nut to serve as a pressing sur-



Ferrules of silk winder-spinner bobbins can be removed quickly with this hook and new ones pressed in with this pin. Both tools fit into the chuck of a drill press, so that a minimum of effort is required to replace damaged ferrules.

A Completely New AND IMPROVED ROLL COVERING "DUSCOT*"

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* A NEW synthetic rubber cot scientifically discovered, developed and tested specifically for the textile industry.

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RESEARCH: As far back as 1929 one of the country's largest and leading research laboratories began work on developing a new—a better roll covering. Attempts to improve existing cot materials were of no avail, but exhaustive tests did establish the basic requirements for a superior cot.

DEVELOPMENT: With the advent of the new synthetic rubbers a vigorous project was launched to develop a completely new material that would meet the basic requirements already established. At long last the chemists and technicians produced a material that met *every single requirement for a superior cot.*

TESTS: That alone was not enough. Detailed field tests were immediately begun, and for over two years now this new cot has been tested under every conceivable operating condition—on every existing type of frame. In one test these cots were still running after 6000 hours —without regrinding.

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DUSCOT Does . . . . .

1. **Resist Oil**—No swelling to cause concave surface. The face remains parallel.
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3. **Resist Abrasion**—No frequent regrinding since rolls don't groove. Far less ends down.
4. **Reduce Static Electricity**—A special technique of composition permits rolls to conduct electricity. That means far less static electricity—a minimum of lapping up.
5. **Offer a Unique Surface**—A controlled gripping surface guarantees uniform drawing and maximum yarn strength.
6. **Holds Its Shape**—After a shutdown rolls do not become flat.
7. **Have a Different Composition**—The rolls are homogenous throughout—not particles of material held together by a binder. Fibres meet *only* a uniform surface.

W. D. DODENHOFF CO., Inc.
619 RUTHERFORD ST. GREENVILLE, S. C.

KINKS & SHORT-CUTS

(Continued from page 134)

face, or a nut or a large washer should be welded on the pin.

To use these tools, place hook a in the chuck of the press and lower the hook into the top of the bobbin to a point below the ferrule. Hold the hook firmly against the lower end of the ferrule, and raise the press lever to pull the ferrule out. The butt of the bobbin must, of course, be held by the lower side of the revolving work table.

Now place the butt of the bobbin on top of the work table, secure pin *b* in the drill-press chuck, and place the ferrule in the top of the bobbin. Lower the pressing nut or washer of pin *b* against the top of the ferrule, and press the new ferrule into the bobbin.

The use of these tools will enable a fixer to keep winder-spinner bobbins in good operating condition during his spare time. *(K-607)* A. E. Kennedy, New Holland, Pa.

Dip Impurities From Soaking Solution

Silk-soaking solutions always present a source of possible damage to the silk, for impurities from the oil, glue, or dyestuffs accumulate on the surface of the liquor. This accumulation will stain the yarn and often weaken it. The impurities should, therefore, be removed before they have a chance to come into contact with the silk.

The best way I have found to remove the accumulation of impurities from the soaking solution is to dip it off. To do this, I made a spoon-like strainer of fine metal netting. The mesh of the net should be fine enough to hold the impurities but permit the liquor to run through. *(K-645)*

Card-Room Counterbelt Cleaned Continuously

Proper care of leather belts, of course, includes cleaning. In our card room, dust and lint collect on card drive belts and counterbelts and must be removed periodically to prevent the belts slipping on the pulleys. Cleaning the drive belts is not so much of a job, since the grinders can clean them with wire brushes while standing on the floor; but cleaning counterbelts requires that the grinders or other maintenance men climb ladders to reach the belts.

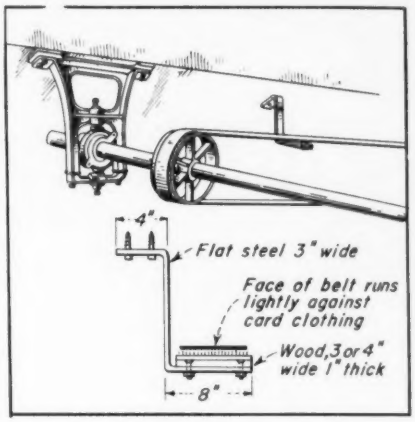
We have installed cleaners that keep our counterbelts clean continuously. These cleaners, similar to the one shown in the accompanying sketch, consist of wire card clothing or stripping-roll fillet held in positions to bear lightly against the faces of running belts.

To make such a cleaner, secure a piece of flat steel about 3 in. wide and long enough to reach from the ceiling to the face of the counterbelt, with enough length added to bend an *L* at each end, as illustrated in the sketch. The *L* at the upper end should be at least 4 in. long. Drill holes for two lag screws in this *L*.

The *L* at the lower end should be an inch or two longer than the width of the counterbelt upon which the cleaner is to be used. In this end drill holes for two bolts.

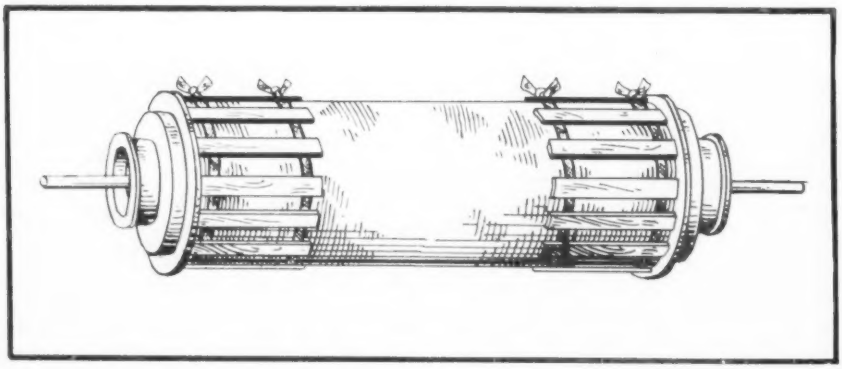
Secure a piece of wood 3 or 4 in. wide and approximately of the same length as the *L* at the lower end of the flat steel. Bore and countersink two bolt holes in the wood to correspond with the holes in the steel *L*. Bolt the wood to the steel, and tack strips of card clothing or stripping-roll fillet to the top side of the wood with the angle of the wire points bearing against the direction in which the belt runs.

Fasten the *L* at the upper end of the flat steel to the ceiling with lag screws. These screws should be placed so that the card clothing is directly beneath the counterbelt. *(K-604)*



This cleaner, installed so that the card-clothing surface bears lightly against the face of a card-room counterbelt, keeps the belt free of accumulated lint and dust. With a holder of a different shape, such a cleaner may also be fastened to the flange of a cylinder housing in order to clean a card drive belt.

Warp Ends Protected With Wooden-Slat Guards



One way to protect warps while in transit or while waiting to be placed in the loom is to tie wooden-slat guards at each end of the warp. The guards are made by attaching strips of soft wood 18x2x¾ in. to two strips of 2-in. cotton webbing. The strips should be placed about 1 in. apart, and the ends of the webbing should be left long enough to tie.

(K-572) Arthur Spivey, Huntingdon, Quebec

Quarter-Drive Belts Should Have a Half Twist

One of the most frequent sources of belt trouble is a quarter-turn drive. In this type of belt installation, one edge of the belt is stretched more than the other edge; and eventually the belt becomes crooked. When this condition occurs, the belt has a tendency to work off the pulley. Thus, part of the pulling surface of the belt is not working or the belt runs off the pulley altogether.

Several precautions can be taken to safeguard against such loss of power. Quarter-turn drives should be arranged so that the pulleys are not closer together than five times the diameter of the larger pulley. A more compact arrangement will cause excessive wear by rubbing and flexing.

It is a good practice also to use belting that is 5 to 10% wider than that employed for straight drives. This greater belt surface provides for a slight

HOW TO CHOOSE INDUSTRIAL FLUORESCENT FIXTURES:

Look for Details!

	YES*	NO
1 Is the fixture die-formed of heavy-gauge steel with all parts securely joined to withstand vibration and rough handling?	✓	
2 Does it have porcelain-enameled steel reflectors of at least 79% reflection factor, with turned-back edges for added strength and chip-resistance?	✓	
3 Do all construction details meet RLM standards? Does it bear the Underwriters' Label?	✓	
4 Are there plenty of knockouts for quick, economical installation in any manner—surface, suspension, unit or continuous?		
5 Is it designed for easy maintenance? Can starters be replaced without disturbing lamps? Can reflectors be quickly removed and replaced without tools?		
6 Is it engineered to distribute maximum glareless light evenly on the working plane—as proved by actual distribution curves?		

* **"YES" MEANS DAY-LINE**

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290

DAY-BRITE RLM

IT'S EASY TO SEE WHEN IT'S

DAY-BRITE *Lighting*

loss of driving power that always results with quarter-turn belts.

If the distance between the pulleys is great enough, quarter-turn belts should be given a half twist before joining the ends. A belt joined in this manner changes its pulling surface with every revolution. Thus, both edges of the belt are subjected to equal tension. *(K-618)*

Double-End Sizing Speeds Nylon Throwing

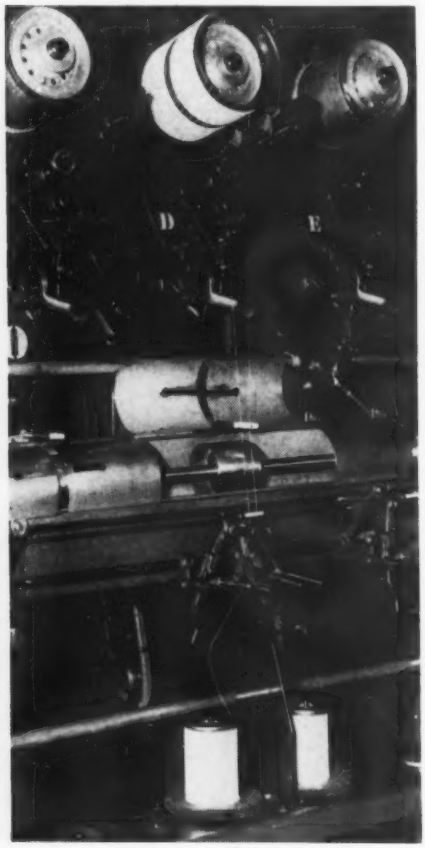
A possible method for increasing the production of machines for sizing nylon yarn has been developed by the Seaford plant of the Dupont Co., and the procedure is being made available to throwing plants.

The method developed is clearly shown in the accompanying photograph. Details of test runs at Seaford on Foster sizing machines are as follows.

Two ¼-lb. packages were built simultaneously at a spindle speed of 1,250 rpm. on the regular sizing bobbin. The traverse cam had a 2¼-in. throw; guides were mounted 3⅜ in. apart.

Tensions were mounted at a converging angle so that the two supply threads were ½ in. apart below the size roll, and the take-off guides were 6 in. apart and above the center of the supply packages. Dividers were used at the supply packages (as shown) to control the ballooning of the thread. Upper size-roll guides were standard V guides, mounted as close together as possible.

Size used was the standard PM 90; size roll speed was 10.28 rpm. *(K-667)*



Separators can be used between supply packages if ballooning is troublesome when sizing two ends of nylon per spindle.

Cleanliness Is Important In Cast-Iron Welding

In order to obtain a good weld on cast iron, it is necessary to have the parts to be welded as clean as possible. I get good results by washing the parts in gasoline or a cleaning solvent and then washing with a hot-water hose. I have found that after this preparation, I get better welding penetration and better removal of slag with the arc. *(K-592) The Stabilizer*

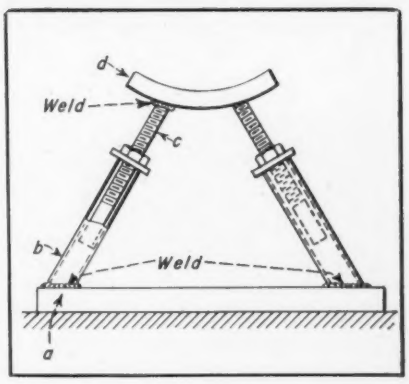
Adjustable Support Can Also Be Used as Jack

A combination jack and adjustable support, similar to the one shown here, can frequently be of service to a fixer or shop mechanic.

To a cast-iron or steel base *a*, weld two lengths of pipe *b*, 1 in. or larger in diameter, at angles of about 60°. These two 60° angles should face each other, so that the upper ends of the pipes tend to meet.

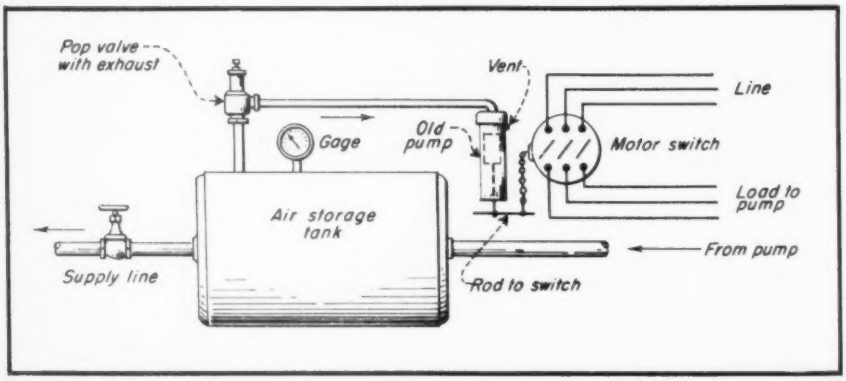
Secure two long bolts *c* smaller in diameter than the inside diameters of the pipes, and saw off the bolt heads. If such bolts cannot be found, thread two steel rods and obtain a nut and thick washer for each. Weld one end of one bolt to the convex side of a curved support *d* at such a point on *d* that the other end of the bolt will fit into pipe *b*.

Place the nuts and washers on *c*, and insert the lower ends of *c* into the upper ends of pipes *b*. The washers and nuts will serve as stops for support *d*. By screwing up or down on the nuts, a fixer can raise or lower *d*. *(K-554)* W. H. Mullen, Quincy, Mass.



This support can be used as an adjustable rest for heavy machine parts or as a jack for raising such parts as card cylinders and doffers. Adjustments to the height of d can be quickly made (within limits) by screwing up or down on the nuts on bolts c.

Exhaust of Pop Valve Stops Air Compressor



A safety device, similar to the one shown here, for use with an air-storage tank can be made in a mill's machine shop. Use a pop valve with an exhaust which can be connected with the exhaust end of an old hand pump or grease gun. At the other end of the hand pump, weld a short shaft at a right angle to the pump shaft. Connect the end of this L-shaped shaft to the chain of a pull-type knock-off switch wired into the circuit leading to the air compressor. When the storage tank is filled, the pop valve exhaust will force the washer in the hand pump down, throwing the switch to stop off the compressor. **(K-491)** *Thurman H. Smith, Shelby, N. C.*

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100% Improvement in Thread Dressing
Typical of Applications all thru Textile Industry.

To secure a better glaze on thread, to obtain more uniform dressing, to reduce machine vibration, to cut down thread breakage . . . one New England thread mill asked Fuller Engineers to develop an application of Fullergript brush strips for their thread dressers.

Fullergript metal backbone strips provided passage for a greater concentration of heat to the threads, which means an improved glaze. The dense formation of brush materials in these strips reduced thread breakage — and also increased brush life.

The success of this application resulted in 34 thread mills switching to Fullergript. In many cases Fuller Engineers developed special mixtures of brush materials for individual circumstances.

Similarly, Fuller Engineers have pre-formed Fullergript in strips, coils, wheels, spirals, and have designed special mountings, so that Fullergript has improved production in every branch of the textile industry. These engineers are available to work on your problems. Why not write for a Fuller Sales Engineer to call?

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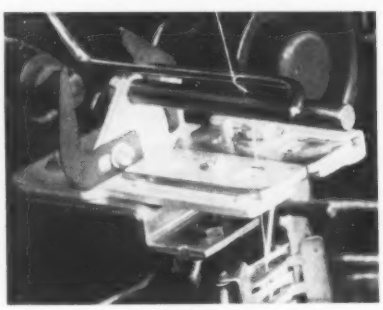
Here's the most familiar "shape" in the synthetic filament yarn industry — the Universal Precision Cone, flat-based, compact, uniformly wound.

Mills who buy synthetic filament yarn on cones know that the Universal Cone is uniform in density, contains yarn that has been carefully inspected, and will deliver freely without plucks or dragging over the nose end.

Synthetic yarn manufacturers prefer it, too, because the No. 50 Precision Winding Machine makes it easy and economical to produce the quality packages that the market wants; and, it is the ideal shipping container, for it contains a maximum amount of yarn and will withstand rough handling.

A Universal Feature Contributing to Cone Quality

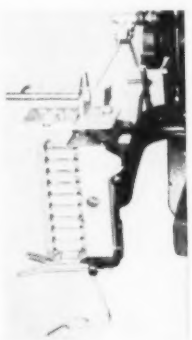
Precision Cleaner is set uniformly from spindle to spindle without depending upon judgment of operator. It is



firmly locked — with blades parallel — against vibration and tampering. All yarn, has same degree of inspection.

A Universal Feature Contributing to Economical Winding

Anti-Wear Tension traverses yarn between fingers in unison with traverse guide, thus distributing wear over a wide surface and lengthening the life of the tension. Case-hardening, double-polishing, hard chromium-plating, inspection with optical instruments, guarantee longest possible service.



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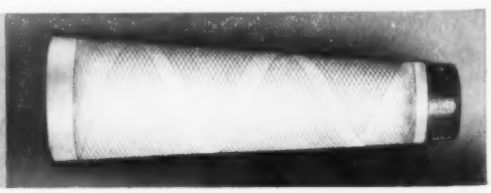

THAT DAILY MEETING WITH THE SUPER

Pete & Bill

Is it worth while for the plant superintendent to have a daily group meeting of overseers?

SEE THAT NEW ORDER--9:30 MEETING WITH THE SUPER EVERY MORNING?
YEP--AND IT'S JUST ANOTHER "BRILLIANT IDEA" THAT'S NOT THOUGHT OUT.
BULLETIN BOARD
1
IT WILL SAVE TIME FOR THE SUPER AND GIVE HIM DAILY CONTACT WITH ALL OVERSEERS.
AND WASTE THE OVERSEERS' TIME. IF THE SUPER IS SO DARN BUSY, THIS DAILY MEETING WILL BE A PAIN IN THE NECK TO HIM, TOO.
2
BUT WE MUST WORK AS A TEAM, NOT AS INDIVIDUALS.
SURE, BUT OUR COMMON PROBLEMS ARE TOO FEW TO NEED A MEETING EVERY DAY.
3
DON'T FORGET THE ADVANTAGE OF KNOWING OTHER MILL DEPARTMENTS AND OF HAVING AN OPPORTUNITY TO MEET THE FELLOWS YOU WORK WITH.
FOR A "BULL SESSION", NOT MILL PROBLEMS, RIGHT READER?
4

Letters From Readers

Personal Attention for Workers' Suggestions

"The Helpful Worker's Ideas"
(Pete & Bill, Feb. 1947)

Dear Pete & Bill:

Supervisors should give personal attention to any idea a worker may suggest. This can be done without interfering with departmental schedules.

Workers should be encouraged in their ideas and rewarded if said ideas are used. If ideas suggested are not practical, the reasons for rejection should be explained to them.

It is detrimental to the morale of the employees to have their suggestions ignored or slighted. Even if a suggestion is ridiculous, the employee should be thanked for his interest. (PB401)

A Morale Booster

"The Helpful Worker's Ideas"
(Pete & Bill, Feb. 1947)

Dear Pete & Bill:

Yes, I was happy when my supervisor gave attention to me when I had a suggestion to make. It made me get ahead of the other ones. It gave the supervisor something to hold onto when he needed his workers' help. Yes, Bill is right. I sure did enjoy your picture, Bill. It looks as if you had a train to catch. (PB402)

Office Hours Won't Work

"Office Hours For Overseers"
(Pete & Bill, Jan. 1947)

Dear Pete & Bill:

Pete's idea is good and has only one apparent flaw. It wouldn't work satisfactorily. Assume, for instance, that Pete adopts the period from 8 to 10 to do his "office" work and that at 8:30 an employee or employees be-

came aggrieved over the condition of some material which they handle on a piece-work basis. It is most impractical to say, "Hold off for an hour and a half."

Unfortunately too, for Pete's theory, is the inconsistent visiting hours of the salesmen. Besides selling a product, they also are a good source of information. They, too, are faced with a busy day and cannot sit around for an hour or so waiting for Pete to complete his office work. (PB403)

A Goodwill Builder

"The Helpful Worker's Ideas"
(Pete & Bill, Feb. 1947)

Dear Pete & Bill:

I believe it is essential to try out new ideas suggested by employees. First, it may save the firm time, material, and/or labor and therefore money. The new idea may lead to a better and more practical one.

The employee will develop initiative and will keep alert on his own work and the work around him if he knows new ideas will be tried out.

The trying out of "Helpful Worker's Ideas" also creates friendly relations among employees, supervisors, and management. This friendly feeling or "good-will" is most important in all businesses. For this reason alone it is necessary to try out new ideas. (PB405)

Suggestion Box Is One Solution

"The Helpful Worker's Ideas"
(Pete & Bill, Feb. 1947)

Dear Pete & Bill:

Now, men, you know there's always a happy medium. One month, Pete decided to segregate his duties and have special hours for each type. Next month, we have Bill wandering around through the mill, being stopped by anybody with an idea, and not knowing what might come up while he was absent.

There is no real reason why Bill couldn't check on the ideas of the oiler. However, he shouldn't stop everything at any time just to check this idea. The man might think somebody would steal the credit for his idea, but a Suggestion Box would overcome this difficulty. Then, Bill could get out in the mill at a convenient time and see what it's all about. It is even a good idea to have a simple acknowledgment sent to the man to keep him happy until his turn comes. (PB404)

Books of Interest

An Up-to-Date Textile Dictionary

CALLAWAY TEXTILE DICTIONARY, by W. L. Carmichael, G. E. Linton, and Isaac Price; Callaway Mills, LaGrange, Ga.; 392 pages, $4.00.

One of the industry's prominent manufacturing firms has sponsored a textile dictionary to fill the current need for such a volume and to be an addition to the basic literature of this field. Each of the authors, working independently over a period of years, had previously begun the task of accumulating, defining, and organizing a listing of textile terms. They were brought together through the influence of Callaway Institute under whose general supervision the work was brought to completion.

Among the authors, as named above, Mr. Carmichael is a member of the faculty of the A. French Textile School of the Georgia School of Technology, Atlanta, Ga.; Dr. Linton is dean of the Textile Department, Fashion Institute of Technology and Design, New York; Mr. Price is on staff of Straubenmuller Textile High School, New York.

A quick estimate indicates that there are over 6,000 words and phrases defined in this dictionary. There are 66 illustrations drawn from 17 sources, of which TEXTILE WORLD is one. The volume is bound in black leatherette with limp covers and gilt edges. The contents are well cross-indexed and cover the field from raw fibers to finished goods in praiseworthy detail. It adheres to the dictionary style of brevity in definition, and it does not attempt to give encyclopedic type of information. A foreword has been supplied by A. B. Edge, Jr., president of Callaway Mills.

German Testing Technique

TEXTILE TESTING IN GERMANY, by H. F. Schiefer, Lyman Fourt, and R. T. Kropf; American Society for Testing Materials, 1916 Race St., Philadelphia; 12 pages, 50¢.

This study was presented at a recent meeting of Committee D-13. It describes and illustrates testing machines for single-fiber strength, universal yarn testing, continuous yarn testing, breaking, bursting, shearing, abrasion, flexing, shrinkage, crepeing, swelling, and warmth. Although the testing situation in Germany appears to have been chaotic through lack of standardization, the machines described have interesting features.

Silk Technology in One Volume

BIBLIOGRAPHY OF THE TECHNICAL LITERATURE ON SILK, by F. O. Howitt; Hutchinson's Scientific & Technical Publications, 47 Princes Gate, London, S. W. 7, England; 248 pages, 21 shillings.

This work starts with a glossary and brings together a vast amount of current data on silk from its cocoon state through all the manufacturing branches. It includes also data on testing, patents, and non-textile uses of silk. The material is grouped by chapters, each of which is a complete survey of the technology of the particular stage under consideration. Each chapter concludes with an extensive bibliography referred to in the text by reference numbers. At the end there is a complete author index which lists nearly 1,300 authors. There are ten pages of subject index. Among the references there are numerous mentions of TEXTILE WORLD articles, especially under throwing, knitting, and testing. The book provides a good one-volume library on silk.

How to Handle Static Electricity

STATIC ELECTRICITY, National Fire Protection Association, 60 Batterymarch St., Boston; 52 pages, 50¢.

This booklet summarizes the processes in industry where static electricity is a hazard, including various textile processes. Another section deals with methods for preventing static accumulations. The concluding section deals with instruments for detecting, measuring, and recording static charges.

The Consumer as a Buyer

CONSUMER-BUYER AND DISTRIBUTION; Committee on Consumer Relations in Advertising, Inc., 420 Lexington Ave., New York; 42 pages, 25c.

This is one in a series of booklets designed to aid those whose products are sold to the ultimate consumer to judge his market.

From yarn to finished fabric . . .

HOUGHTON SERVES THE KNIT GOODS INDUSTRY

Textile processing products of interest to knitters include a wide variety of oils, detergents and wetting agents supplied in volume by E. F. Houghton & Co. For example:

SILKLUBRICS—silk soaking oils having high penetrating and plasticizing properties.

RAYLUBRICS—for soaking, softening, throwing and finishing acetate, rayon and other synthetic or natural-fibre yarns, in preparation for knitting.

SOL LUSTRE—an old established Houghton brand of softening and finishing oils used for knitted fabrics.

SOFTEX—new cationic softeners, exhausting readily on the fabric and providing the necessary soft finish. They work well where the pH of the solution is below 7.

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Round Table

FOR EXCHANGE OF IDEAS

The Round Table is designed to supply a meeting place where mill men can discuss problems among themselves. It is open to all readers for discussion of subjects relating to mill management and operation. Names of contributors to the Round Table will be held confidential if so requested, but sign contributions with your real name and address as evidence of good faith and to permit payment for items published. Address contributions to : Editor Round Table, Textile World, 330 West 42nd St., New York 18, N. Y.

Japanese Spinning Frames Are Not Superior to U. S.

It has been interesting to note the reports of developments in the textile industry of other countries, particularly Germany and Japan. Some of these developments are provocative and will undoubtedly lead to experimentation in this country. Others, however, do not constitute the advance sometimes claimed for them.

A particular example of the latter is the favorable report on Japanese spinning frames, as compared with American spinning frames. It has been generally reported that Japanese frames operated at spindle speeds of 11,000 to 13,000 rpm. These speeds, of course, are much higher than the speeds generally run by mills in the United States. When the complete picture is drawn, however, it can readily be seen that such speeds do not reflect a true superiority of Japanese frames over American frames.

The real limiting factor in spinning speed is not the spindle but the traveler. The following experience serves as an illustration of this fact. Some time ago, we changed over 20 spinning frames on 12s and 20s warp from 2¼-in. rings to 2½-in. rings. The spindles, diameter and length of the bobbins, and the traverse were changed

YES!
YOU CAN MEET
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PARAMUL** 115 Water Repellent is an aqueous solution of wax and aluminum salts that imparts superior water repellency and stain resistance to a wide variety of fabrics—cotton, rayon, linen and wool. It is equally suitable for treating such fabrics for outerwear or equipment purposes. Easy and economical to use. Odorless and harmless to skin or fabric. Stable over a wide range of temperatures, it can be stored safely for long periods of time. In its ability to meet a specific need precisely, PARAMUL 115 is typical of the many Cyanamid products developed for use in the textile industry.

CALL CYANAMID! The services of Cyanamid's technical service staff backed by our extensive textile research facilities are ready to assist you to achieve superior results . . . *economically* . . . in water repellence and stain resistance for your fabrics.

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AMONG CYANAMID PRODUCTS FOR THE TEXTILE INDUSTRY ARE... Penetrants, Softeners, Finishes, Sizing Compounds, DECERESOL* Wetting Agents, PARAMUL115 Water Repellent, and other Specialties and Heavy Chemicals. For low-cost chemical equivalent of distilled H_2O... FILT-R-STIL* Demineralizing Units.**

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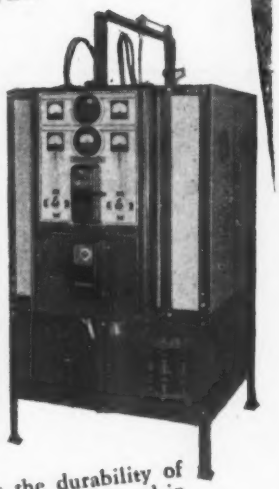
★ *Accepted by the Textile and Dyestuff industry as the standard accelerated testing machines for determining the light fastness, weathering and washing qualities of materials.*

Weather-Ometer

Fade-Ometer

Launder-Ometer

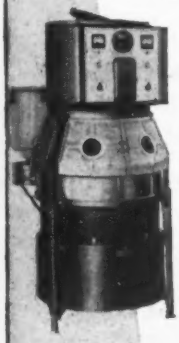
ATLAS *twin arc* WEATHER-OMETER



Faithfully duplicates the combined weathering effects of sunlight, rain, heavy dew and thermal shock; accelerated to reduce years of actual weathering to a few days of testing.

The new Twin-Arc Weather-Ometer is equipped to take large size textile specimens in order to meet the new Federal Specifications demanding accelerated weathering tests. Full automatic control of light and water periods is provided by the Atlas cycle timer unit which can be set to meet standard and special requirements of weathering tests. A direct reading thermal regulator, automatic shut-off switch and a running time meter are included as standard equipment. After setting exposure cycles on the control panel the Weather-Ometer can be safely left in continuous operation overnight without attention except to replace carbons once in 24 hours.

The Atlas Weather-Ometer proves the durability of materials under exact conditions of weathering found in actual use in outdoor exposure.



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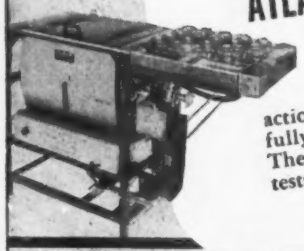

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Originators and sole manufacturers of accelerated testing devices for over a quarter of a century.

to maintain the same angle of pull on the yarn except as the longer traverse affected it.

These frames had been operating at a spindle speed of 9,200 rpm., or a traveler surface speed of 5,420.5 ft. per min. After the change-over had been made and the frames started up at the same spindle speed, we could not keep travelers on the rings. We had to reduce the spindle speed about 11%, which was practically the equivalent of the increase in ring size. The travelers then ran all right.

On the basis of this experience, it seems that the old cotton-mill rule that travelers should not exceed a mile a minute is rather sound. It seems also that Japanese mills, with their narrow-gage frames and small rings, are not accomplishing speeds impossible with American frames.

Consider the following comparison of Japanese speeds with the speeds of three mills in the United States spinning yarn for three different types of goods:

Japanese mills—maximum ring size, 1⅝ in.—maximum spindle speed, 13,000 rpm.—traveler speed, 5,525.0 ft. per min.

U. S. mill No. 1—ring size, 2¼ in.—spindle speed, 9,200 rpm.—traveler speed, 5,420.5 ft. per min.

Mill No. 2—ring size, 2 in.—spindle speed, 10,800 rpm.—traveler speed, 5,652.0 ft. per min.

Mill No. 3—ring size, 2½ in.—spindle speed, 8,640 rpm.—traveler speed, 5,654.8 ft. per min.

If the Japanese traveler speed is considered as 100, the speed of mill No. 1 would be 98.07, that of mill No. 2 would be 102.30; and that of mill No. 3 would be 102.35.

In comparing the progress of the textile industry in the United States with that in the industry of another country, it is only fair to give full weight to the economic factors that influence mill practices. Some time ago it was pointed out that finishing plants in Europe cannot adopt the efficient continuous operations used in the United States because their orders are, in the main, of short-run yardages; whereas, in the United States, finishing plants operate with relatively huge runs. It would not be appropriate, therefore, to say that American finishing plants are vastly superior to European plants because of the former's adaptation of continuous processing, since economic factors in Europe work somewhat against such adaptation.

Neither is it appropriate to say that Japanese spinning mills are technically superior to American mills, since low labor costs in Japan have made it practicable for mills to retain their small

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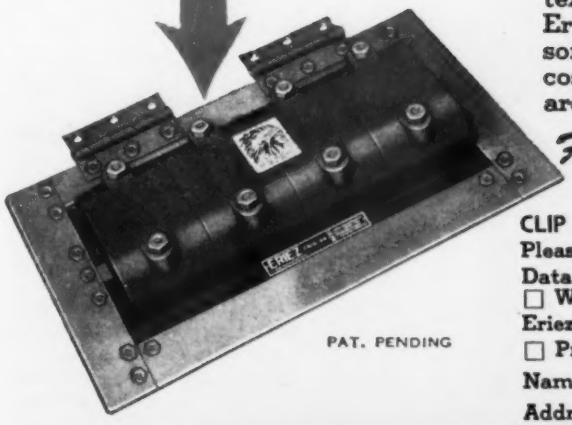

PAT. PENDING

ERIEZ Non-Electric Permanent Magnets installed on feed tables, above the spiked aprons, in processing lines to feeders, cards, peraltas, openers and cleaners remove tramp iron completely from textiles in process. The protection against damage of expensive machines alone is worth much more than the Eriez installation costs. But more than mere protection of cylinder teeth, clothing and the like, are the elimination of fire hazards from tramp iron and the uninterrupted continuance of production of clean textile materials. Such leaders as are shown above choose Eriez Magnetic Protection because it pays them a handsome dividend. The first cost of Eriez Magnets is their last cost. No upkeep, no special electrical apparatus . . . Eriez are always on the job.

For Complete Textile Magnetic Protection . . . See Eriez First

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Please send bulletin No. 104 and the following:

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☐ Wool ☐ Cotton ☐ Worsted ☐ Other processing lines

Eriez data on: ☐ Gravity Conveyor ☐ Mechanical Conveyor

☐ Pneumatic Conveyor ☐ Equipment on Processing Machines

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The Eriez Magnetic Hump for air lines officially F. M. approved is available for prompt shipment.

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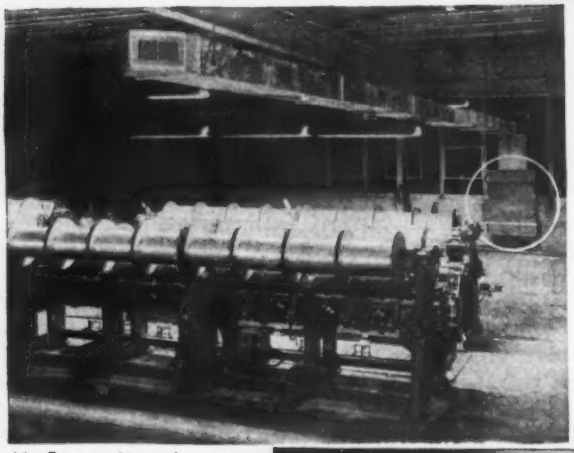
See AIR-PERME-ATOR
("DRY HUMIDIFICATION")
IN ACTUAL OPERATION
—at the Knitting Arts Show

BOOTH 84
ATLANTIC CITY, APRIL 29-MAY 2

These machines are extensively used to maintain even Relative Humidity, day and night, in leading textile mills. They are essential to efficient tricot, circular, and hosiery knitting.

Humidifies without free moisture. "500 times finer than spray". This prevents rusting of machines, and needles, and bleeding of bearings, and damage to yarns and fabrics.

↑ Acts as an all year 'round air conditioner.



↓ Air-Perme-Ator in "Air - conditioning" in Circular Knitting.

Air-Perme-Ator in "Air - conditioning" in Tricot Knitting. ↑

AIR-PERME-ATOR
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rings and high spindle speeds, while high labor costs in the United States have forced mills to go to large rings and low spindle speeds.

It is generally understood that such Japanese improvements as traversing thread boards, differently designed ring flanges, and tip-drive spindles have been experimented with in the United States for a number of years; but they have not been widely accepted by spinning mills. Is it not significant that Japanese mills, using these so-called improvements, have not been able to exceed the traveler speed of American frames operating with what we consider conventional equipment? (*R-331*)

Competition Must Be Met By Adopting Improvements

TEXTILE WORLD is doing a fine job for the industry. As we continue to move into an era of highly competitive business, the job you are doing is becoming even more valuable.

In the past, when selling agents met competition by selling goods below margin, the mill reduced wages 5, 7, or 10% to cope with the emergency. That policy can no longer be followed. To remain in business, mills must adopt technical improvements—such as some of the materials-handling ideas you have been featuring lately—in order to produce more goods at the same or at a lower cost.

I am constantly trying to impress this fact upon all my key men. I find that there is no better way to keep them informed than by getting them to read TEXTILE WORLD. In your magazine we get not only an accurate account of the progress that is being made by the industry in the United States, but also the progress that is made by the industry in other parts of the world. (*R-332*)

Tongue and Groove Compresses Drawing Sliver

We have been advised by the contributor of K-556 [TEXTILE WORLD, October, page 148] that a slight error was made in the measurements by which the compressing tongue and groove is constructed. Since the merit of this kink lies in devising a tongue and groove for use with standard drawing-frame calender rolls, it is important that the proper measurements be used. The following description of the kink is accurate in every detail.—EDITOR

By devising a tongue-and-groove arrangement for the calender rolls of our drawing frames at points directly beneath the trumpets, we have been able to put 17% more drawing sliver in our 12-in. cans, thus reducing the drawing-

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frame doffing task by that amount. An additional benefit has been a reduction in the amount of loose lint at the fly frames.

In making the tongue and groove, we removed the calender rolls from the drawing frame and had the machine shop build up the working sections of the back calender roll with a metallizing gun. The built-up sections of the roll were then machined so as to form grooves $\frac{1}{8}$ in. wide plus a clearance of 0.004 in. to receive tongues $\frac{1}{8}$ in. wide. All metal added by the metallizing gun was removed from the bottoms of these grooves, so that the bottom surfaces of the grooves were precisely equal in diameter to the original diameter of the calender roll. On either side of each groove, the built-up section was machined to leave a shoulder $\frac{3}{8}$ in. wide.

Two grooves were cut in the front calender roll at points corresponding to the $\frac{3}{8}$-in. shoulders on the back roll. These grooves are slightly deeper than the height of the shoulders on the back roll, so that the shoulders do not touch the bottoms of the grooves.

The $\frac{1}{8}$x$\frac{1}{8}$-in. tongue that remains between each pair of guide grooves on the front roll fits into the compressing groove on the back calender roll. Since the working surfaces of the tongue and groove are the unchanged surfaces of the original rolls, the tongue bears continuously against the bottom of the compressing groove, except as it is prevented from doing so by the presence of sliver.

The measurements of the compressing tongue and groove are as follows:

Width of groove $\frac{1}{8}$ + 0.004 (in.)
Depth of groove $\frac{1}{8}$
Width of tongue $\frac{1}{8}$
Depth of tongue $\frac{1}{8}$.

As drawing sliver is taken from the trumpet, it is confined within the groove and compressed by the action of the tongue. *(R-333)*

Designer Can Aid Mill To Maintain Production

The mill's selling agent or salesman could contribute much to maintaining production by being careful to select as few shades as possible for styling the line of fabrics the mill is to produce.

In many of the mixes we run (in a woolen mill manufacturing cloth for men's wear), there are often more colors used than are really necessary.

It would be a great help to the mill if the designer would try to follow each shade or mix with another that is close to it in color, so that some of the time lost in changing from one color to another could be eliminated. *(R-324)*

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The sugar you eat was undoubtedly refined under the close control of a Beckman pH instrument—for accurate pH control has become an indispensable part of every well-managed sugar refinery.

The suit you wear, as well as your sox, shirt and other textiles you and your family use were probably produced with the aid of Beckman pH Control. It insures color-fastness, more uniform quality, greater strength in the finished fabric.

WHY NOT YOUR PRODUCT? Example after example can be cited where the job is being done better *for less* by means of Beckman pH Control. Chances are in *your* plant there are many important savings to be made through the installation of Beckman pH Control. Wherever there's water, there's pH—whether in chemical solutions, fluid pulps, moist pastes, sludges, industrial wastes or vat and tank processes. And wherever water or water solutions are used, chances are product quality can be improved, waste reduced and operating efficiency increased through the use of Beckman pH Control.

Why not find out about *your* product? Our trained engineering staff will be glad to work with you in recommending what can be done—possibly is already *being* done—in your particular field of industrial operation. *Beckman Instruments, National Technical Laboratories, South Pasadena 12, California.*

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The above are only a few of many developments that make Beckman pH Equipment the *only* pH instruments embodying *every* modern advancement in the field of pH measurement and control.

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Questions AND Answers

Western Wool-Scouring Plant Poses Questions

Technical Editor:

We are interested in starting a wool-scouring plant at some point in the Southwest near the principal source of wool supply. Can you answer the following questions:

1. Is not most of the wool scouring in this country done in the East?

2. Would there not be a considerable saving in freight charges by scouring wool at the source of supply?

3. In a wool-scouring plant, is the by-product lanolin an important factor in profits? It is our understanding that lanolin is used in making soap.

Any other pertinent points that may occur to you will be appreciated. (9165)

It is true that the bulk of the wool scouring in this country is now done in the East, also that there would be savings in freight charges by shipping scoured wool from Western points.

In many large wool-scouring plants, lanolin is recovered. The true relationship the cost of recovering the lanolin has to the price it brings is somewhat questionable, but there is usually a small margin of profit in recovering it. At least one large worsted mill not only recovers the lanolin but also makes a line of toilet preparations based upon it. As you indicate, lanolin may also be used as a base for soap.

There are not many scouring plants in the Far West or in the Southwest. At least one such project has been attempted in Texas, and lately there has been some talk about another project in Texas. The long wools grown in the Southwest are, of course, used for producing worsted yarns, and the short wools from the same area are used for woolen yarns.

The domestic market for carded woolen yarns is relatively narrow, as compared with worsted yarns. Most of the larger manufacturers of woolen fabrics spin their own yarns, whereas such knitting mills as use woolen yarn are on the whole most likely to be buyers of such yarn, since they rarely have any spinning machinery. Most hand-knitting yarns are made on the worsted

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system, although some are spun on the woolen system. There is a fair market for worsted hand-knitting yarn, and there might be a market among handweavers for woolen yarns.

The principal problem in scouring wool on or near the spot of wool growing is the matter of sorting. Obviously, you could not scour a collection of fleeces; and some mills like to do their own sorting or at least like to buy their wool from certain dealers with whose sorting standards they are familiar. It might be wise to develop a tie-up with some Eastern wool dealer who would supply the sorting responsibility and so be able to market the sorted and scoured wools without the questions that might otherwise arise.

There are those who believe that scouring in the West is a coming thing, and on the other hand there are probably more who believe that it is impracticable. The best that can be said is a note of caution to lay a very good background before entering into such an operation.

Small Blending Plant Might Be Successful

Technical Editor:

I am considering the possibility of installing a unit of blending machines at some location in the South, with the expectation of preparing various blends for use by the mills in that section. There are a number of such blending plants in the North, and it seems that a small plant could be operated successfully in the South.

What is your opinion on this matter? (9166)

As you know, the amount of money required to equip a modern opening or blending room is practically insignificant as compared with the amount of money involved in equipping an entire mill. Since the large mills in the South would not hesitate to purchase any blending machinery they need or with which they wish to experiment, your blending business would be primarily with the smaller plants.

It is true that entirely different sequences of machinery are needed for blending different fibers—cotton, wool, synthetic, etc. However, opening and cleaning cotton require much more machinery than blending any of the other fibers. Mills equipped at present for blending cotton would find it necessary only to eliminate a portion of their equipment in order to blend satisfactorily practically any other fibers now available.

On the other side of the picture, there likely will be more very small plants established in the South. These plants probably will utilize synthetic

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yarns, because of the minimum machinery requirements in processing this type of yarn. If such should be the development, a small blending plant might very well secure sufficient business to operate.

Another possibility undoubtedly would be some of the larger mills whose major production is in a few constructions of goods but who might desire to go into small-scale production on a blend that is different from their present production. Some of these mills probably would not wish to interrupt the flow of their major production through the opening room and might be willing to purchase blended stock.

Blending Worsted Colors Requires Accurate Drafts

Technical Editor:

Recently we added a color-blending room to our worsted department, and we have been having trouble in obtaining proper doublings and drafts.

Our tops from the backwasher weigh 8.75 oz. per 5 yd. At the mixers in the blending room, the tops must weigh 7 oz. per 5 yd.; and the stock delivered from the finishers must weigh 3.25 oz. per 5 yd.

Can you give me a formula for figuring the proper doubling and drafts to use for our layout? (9163)

The following drafts and doublings should work satisfactorily for your purpose:

Backwasher delivery: 8.75 oz.

Mixer: (8.75 oz. × 5 doublings) ÷ 6.25 draft = 7 oz. delivery

Finisher: (7 oz. × 3 doublings) ÷ 6.46 draft = 3.25 oz. delivery.

Draper Loom Unsuited For "Tumble-Twist" Rug

Technical Editor:

Can you advise me as to the type of machinery used to make the inclosed sample of piled rug?

We have 5-harness, 40-in., Model E Draper looms. We understand that a special warp beam can be placed on this type of loom for weaving the pile. If any special attachments are needed to weave such a rug, we should appreciate a brief description of them. (9164)

This type of piled rug was developed by one company and is sold under the name "Tumble Twist." The rugs are made in standard room sizes and in scatter-rug sizes.

If you convert your 40-in. looms to weaving this type of piled fabric, you will be limited to producing rugs of 36-in. finished width.

The conversion job would require the services of a skilled loom machinist. A special-beam hanger for the pile-yarn beam and a pile-wire attachment

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on the breast beam of the loom would be necessary. Draper looms are not constructed to accommodate this extra equipment.

Cromptom & Knowles Loom Works may have a pile-wire attachment that could be used on C & K looms for making "tumble-twist" pile, but it is questionable that such an attachment would be adaptable to a Draper loom.

A Brussels carpet loom would be much more suitable for weaving these rugs. The pile-wire attachment for this loom consists of a number of wires at the side of the loom. These wires are automatically inserted into the fabric as it is woven, produce the pile by raising the pile-warp yarn, and are withdrawn from the fabric.

The pile-warp yarn must be tightly twisted. It should not be steamed, since live twist is necessary to make the loop raised by the pile wire twist itself together when the wire is withdrawn.

Locust-Bean Gum Widely Used in Finishing

Technical Editor:

Is St. John's bread meal, sometimes called carob-bean flour, used in the textile industry in this country? (9162)

St. John's bread meal (carob-bean flour) is widely used in this country under the name of locust-bean gum. This gum serves as an ingredient in many warp-sizing compounds that contain fats and lubricating agents. These compounds are designed for use with starch for sizing cotton warps. Cotton mills often purchase locust-bean gum and add it directly to the size mix.

In cotton piece-goods finishing, locust-bean gum may be an ingredient in backfill mixes, where it is said to aid in binding mineral fillers and lessen their tendency to dust out. In pure finishes that are applied on a starch mangle, the inclusion of locust-bean gum in the formula may give a desirable added viscosity to the mix. Also, it imparts a certain amount of stiffening to a cotton fabric.

The gum is also used in the finishing of rayon piece goods, since it has the ability to impart stiffness and body to rayon fabrics without materially altering the shade or diminishing the luster to too great a degree. The use of this natural gum is not so great as it once was, since many of the newer synthetic resins have taken its place.

The gum is commonly marketed in the form of a finely ground powder or in the form of a thick, viscous gel containing usually not over 3.0% to 4.0% solids. It is seldom, if ever, used at more than a 1.5 oz. to 2.0 oz. per gallon concentration.

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Aluminum Equipment

(Continued from page 123)

side covers, and miscellaneous cast brackets on cards.

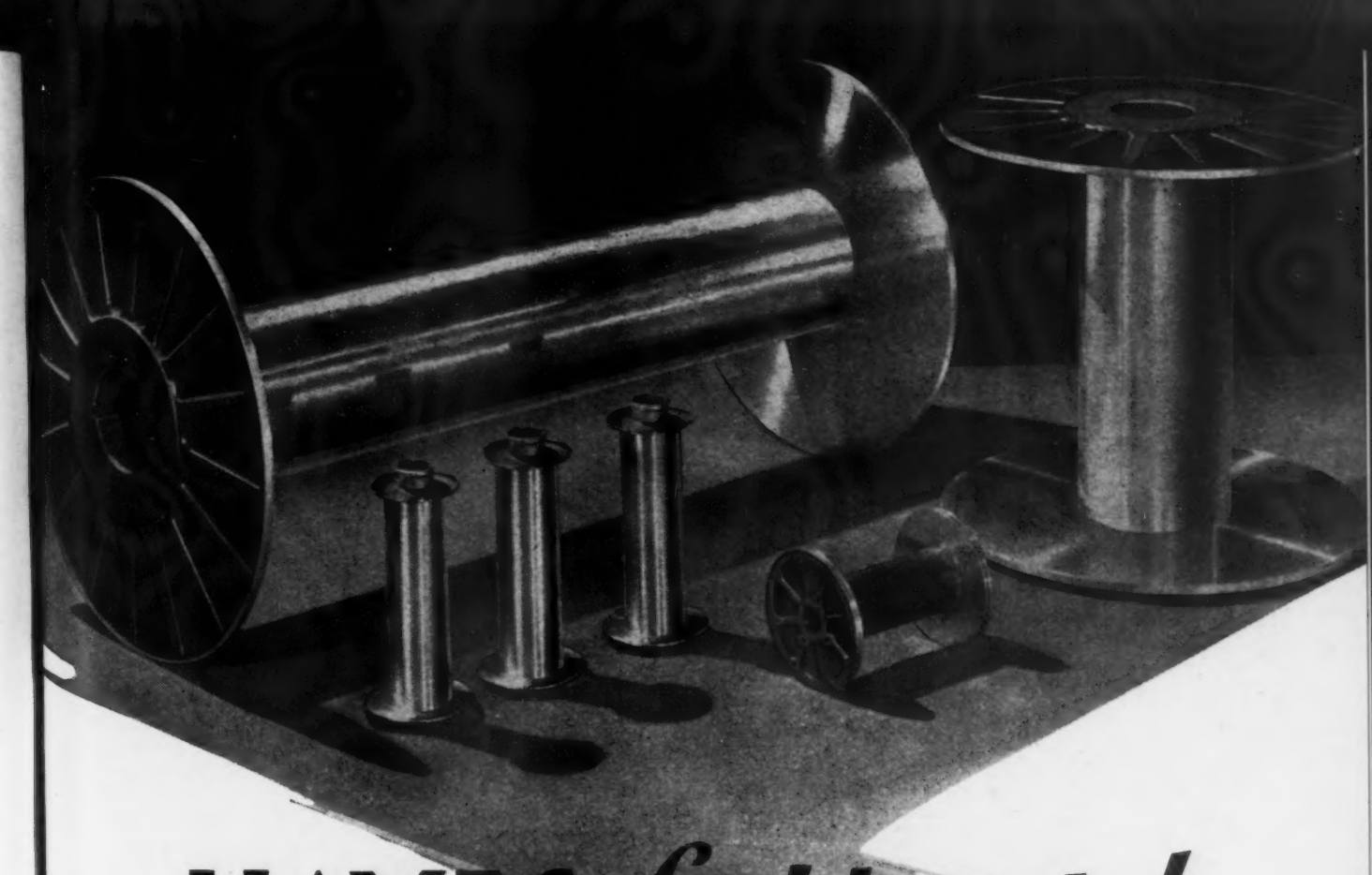
YARN PREPARATION. In doubling, throwing, twisting, and winding equipment and machinery, excess weight cuts down efficiency. In such equipment, aluminum die castings and fabricated sheet aluminum are used for separator blades; and aluminum tubing is recommended for spindle drive barrels. Other advantageous uses of aluminum in this phase of weaving are in twister rollers, clearer rollers, traverse bars, ring holders, flyer blocks, and extruded ring rails and supports. At the high speeds involved here, balance and lightness must go hand in hand; and aluminum is of further use in avoiding the warping and splintering of wooden parts which often result from the high relative humidity present during some of these operations.

Another indication of the growing popularity of aluminum is seen in the trend toward the use of die-cast aluminum bobbin holders, adapters, brackets, and other parts now made of cast iron. Changes to paper-tube-package foundations on cotton and staple-fiber spinning equipment presents one more possible use of die-cast aluminum in sleeves or adapters that can be used with present steel spindles. And the use of aluminum castings or press forgings is being considered for cap-spinning equipment.

The many moving parts of beaming, warping, sizing, and slashing machinery again indicate the use of aluminum in reaching higher speeds and in lowering maintenance costs. Aluminum castings, extrusions, and fabricated parts are used on coning and spooling equipment and in high-speed warpers.

The non-staining characteristics of aluminum are a definite advantage in producing a first-class warp. Slasher hoods and ducts of this metal not only prevent spoilage in the warp being conditioned but have the added advantage of being easily maintained in good appearance. Because of its factor of strength, aluminum is coming into increasing use for section beams also; new, stronger yarns and developments in high-speed warping equipment call for beams with higher strength, greater precision, and better balance; and these qualities aluminum can provide.

LOOM PARTS. Light weight in looms and weaving equipment has long been recognized as important not only for



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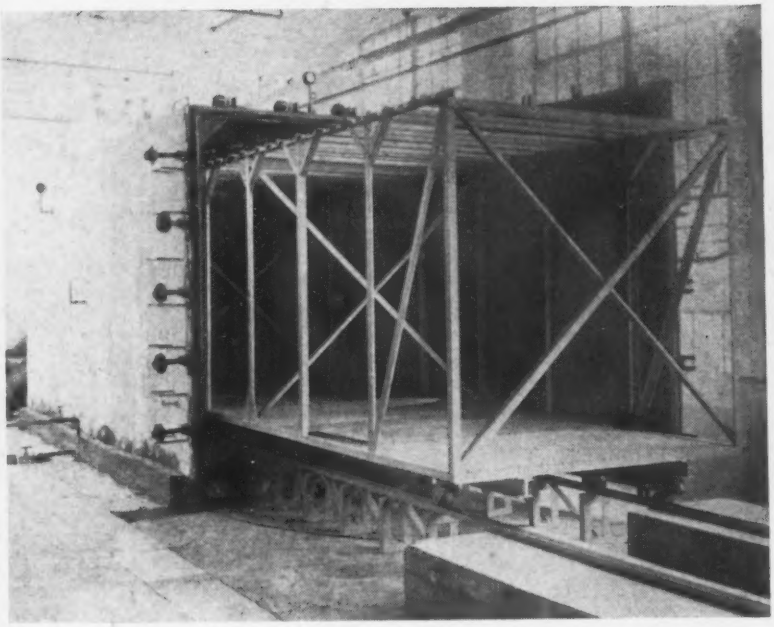

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the saving in energy expended but for the value received in more uniform motion. New developments in higher speeds bring aluminum into use for lay beams, hand rails, and swords; and the result is reduced vibration in operation. Shuttle boxes of drop-box looms, hand wheels, brackets, pulleys, and filling-stop motions are being made of aluminum-alloy castings; and heddle frames, reeds, harness mechanisms, and pickers are being developed.

Aluminum is beginning to replace wood and heavy metals for high-strength, light-weight warp or loom beams with good dimensional stability; it is also used for the tubing and extruded sections of cloth rolls and take-up rolls. The non-magnetic and electrical characteristics natural to this metal make it a strong contender in the field of automatic looms.

WET PROCESSES. Since aluminum is one of the most resistant of commercially available metals to acid atmosphere and solution, it is extensively used for drying poles, tubes and pipes, parts of washing machines, cast doors for drying chambers, and guard plates and chain covers for tenter frames. But although aluminum equipment satisfactorily resists attack in the presence of hydrogen peroxide, acid dyes, or acid-chrome dyes, in the case of fast cotton dyes of alkaline solution, an inhibitor should be added to prevent corrosion. The application of neutral or slightly acid dyes, such as those used on wool and silk, however, provides excellent uses for aluminum in piping and fittings and in the construction of dyeing and soaking machines and yarn-conditioning ovens. Perforated tubes and spools made of aluminum are also successfully used in dyeing and processing.

Dye sticks made of aluminum tubing and using special coatings have given satisfactory service. Aluminum sheet, plain and perforated, and castings are used for covers and outer casings on kiers and extractors; the advantages here are light weight and the fact that the extracted liquors are not contaminated. In the drying and conditioning of yarns, aluminum is being used for the construction of dryers, rods and bars for skein supports, dry cans, and yarn-drying trays.

Finishing operations which call for articles to be dyed, stretched on profile shapes, steamed, set, and dried find in aluminum the ideal material, for it retains heat, will not warp, and has a permanent, smooth finish. Aluminum hosiery forms can even be cast with interior steam passages or electrical heating elements. In the pre-boarding operation of nylon ho-

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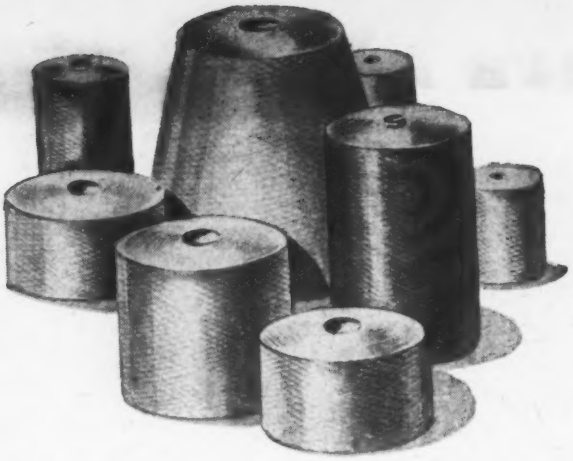

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siery, a hard anodized finish on aluminum-alloy sheet gives excellent results; and aluminum is also used to advantage in the conveyor belt which carries the forms through the steam and drying ovens. All in all, few other metals can equal aluminum for durability and service under conditions which involve alternate moistening, heating, and drying; fewer still can match it in lightness or in ease of manufacturing and handling.

PLANT EQUIPMENT. Because of its non-staining and corrosion-resisting qualities, aluminum is the choice of many equipment manufacturers for the fabrication of fans, ducts, baffle plates, hoods, and general equipment for the proper conditioning, exhausting, and ventilating of textile mills. Various processes which require closely controlled temperature and humidity or which produce fumes that must be exhausted have little or no effect on aluminum. These same qualities are bringing aluminum to the front in the structural requirements of textile mills for windows, doors, skylights, framings, lighting installations, and many other functional uses.

The development of high-speed machinery adaptable to the processing of new yarns and fabrics has been paralleled by the development of suitable yarn-package foundations, such as bobbins, spools, pirns, and other accessories. Because of these higher operating speeds and in the interest of more efficient machinery, it has been necessary to develop bobbins and spools which will carry larger packages, have higher strength and operate at greater speeds with a minimum of vibration. This development has been furthered by the use of aluminum in the form of sheets, tubings, castings, and forgings. The bobbins and spools thus constructed meet the main requirements of good dynamic balance, light weight, smooth surface, and high strength; and they are resistant to splintering, slipping, and splitting under humid operating conditions. Aluminum high-strength-alloy sheet, either with or without anodized finish, is used extensively for the heads of horizontal bobbins.

In the case of quills, or automatic bobbins, and other accessories for fillings for shuttles, aluminum has been used with some success, especially for quills to be used on worsteds, velvets, and crepes. In the majority of cases, the cost of metal quills has been high compared with wooden ones; but certain advantages, especially with woolen yarns that are dyed on the quills, warrant the additional cost. Furthermore, the development of new alloys and methods of fabrication and as-

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sembly offer new possibilities for aluminum in accessories of this type.

Die-cast aluminum cop butts designed for heavy, plied, and coarse yarns have been used in large quantities with excellent results.

The foregoing notes summarize in general the present applications and some of the future possibilities of the use of aluminum and aluminum-alloys in textile equipment and machinery. Continued development and study by textile engineers, manufacturers, and ultimate users will naturally uncover still greater potentialities.

Bleaching Range

(*Continued from page* 119)

min. the steam consumption will jump to 5,100 lb. per hr., an increase of 10%. With manual control, the same piece of equipment washing identical cloth may consume varying amounts of water from day to day.

A recording flow controller on each washer holds the water flow at its optimum minimum, thereby eliminating steam wastage. Indirect heating of washer water and utilization of spent wash water to preheat make-up water, in combination with automatic water flow and temperature control, can effect steam savings in excess of 88%.

A thermocouple assembly has been designed specifically for temperature control. It is available in two standard lengths, one for washers and saturators and the other for the J-boxes. This design provides uniformity for ease of installation and eliminates the extra weight and dimensions of thermocouples designed for general use.

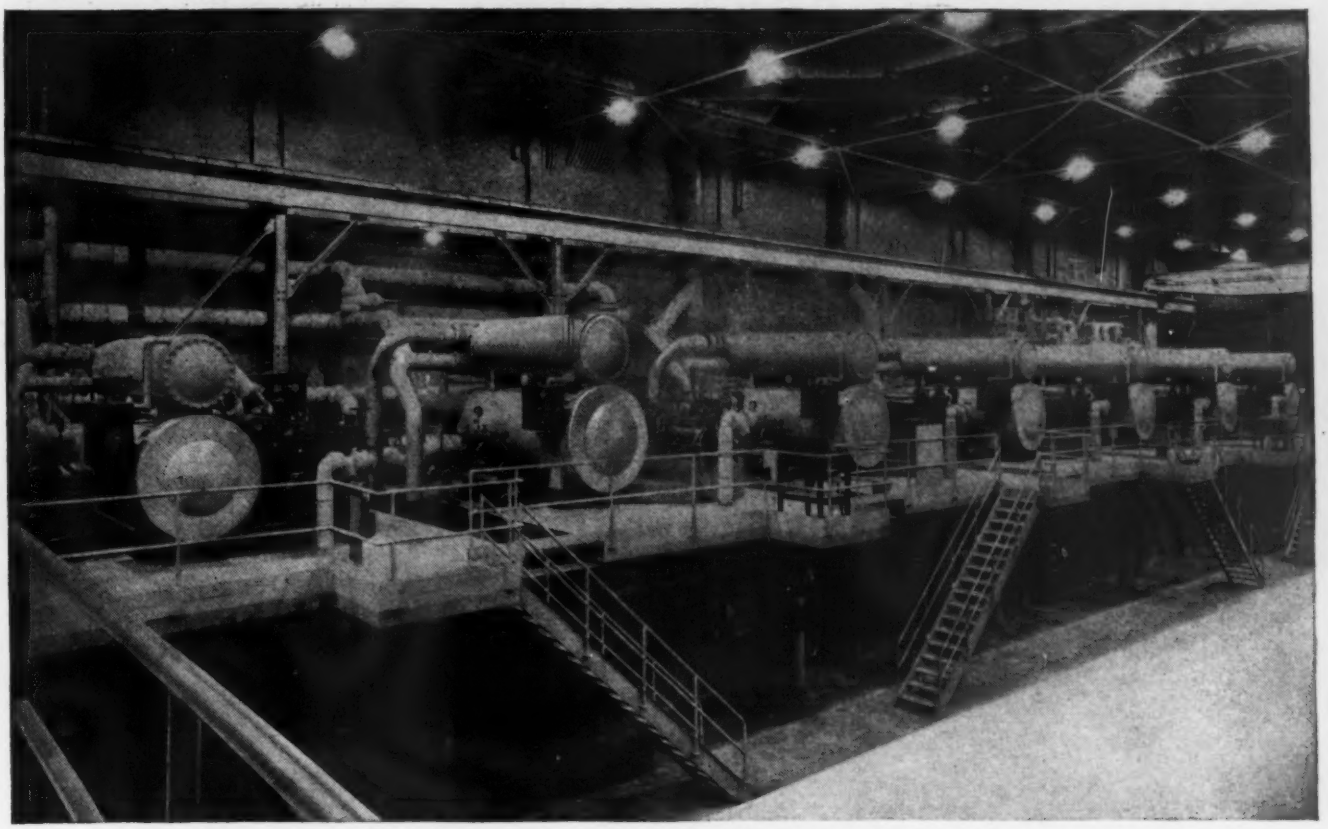
There is a distinct relationship between the temperature of the washing water and the quantity required for satisfactory washing action. A flow of 100 gal. per min. may give good results at 140° F., but may not wash properly at 100° F. If the water flow is held constant and the temperature is allowed to drop, poorly washed cloth will result. Should the temperature rise above the proper point, the cloth will be washed thoroughly; but steam consumption will rise about 10% for every 10° F. rise in temperature.

Due to the short length of time the cloth remains in a washer, temperature deviations should be detected and corrected immediately.

A recording electronic-pneumatic controller, actuated by a thermocouple, responds instantly to minute temperature changes and furnishes the close control demanded by the low capacity and high-speed operation of the washer.

(*Continued on page* 168)

The seven 1000 H.P. York Turbo-Compression Systems shown here chill 12,000 gallons of water per minute. Such compressors are available over a wide range of capacities up to 1500 H.P. per unit.



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(Continued from page 166)

TEMPERATURE AND LEVEL. The problem of small capacity and high-speed operation is again encountered at the caustic saturator. The cloth is traveling through the saturator so rapidly that any temperature variations within the saturator will be reflected almost immediately in the temperature of the emerging cloth. Since the amount of steam required in the heater tube or J-box is largely dependent upon the latent heat of the cloth leaving the saturator, anything less than precision control at the saturator will result in erratic steam flow to the J-box. Here, the recording pneumatic controller holds the temperature within extremely close limits.

As in the case of the caustic saturator, the temperature of the peroxide saturator is an important factor in determining steam flow to the heater tube or J-box. Moreover, excessive decomposition of peroxide at elevated temperatures renders precise temperature control a critical factor.

A recording electronic-pneumatic controller employed at this step of the process insures constant temperature of cloth leaving the saturator and holds peroxide consumption to a minimum.

Since a device for continuous chemical-concentration measurement and automatic control for the saturators is not commercially available at this time, a semi-automatic control has been arranged. Chemicals in either dilute or concentrated state are fed to the saturator through proportioning pumps, arranged to start and stop automatically with the saturator squeezer. Obviously, if a constant level of solution is maintained in the saturator, chemical concentration will remain uniform. An air-purge type level controller, regulating the flow of water to the saturator, maintains this level.

J-BOX OR HEATER-TUBE CONTROL. To obtain the best results from the causticizing and/or bleaching, which takes place in the J-box, the box temperature must be held at a predetermined point. Here it is necessary to take into consideration the temperature of the cloth as it enters the J-box or heater tube.

Excessive steam flow, in addition to increasing operating costs due to steam wastage, causes a partial leaching out of the chemicals by condensation on the cloth. This brings about lack of uniformity in bleaching. Too low a steam flow does not allow the chemical reaction within the J-box to go to completion and results in partially bleached cloth.

In J-boxes of one type, a recording steam-flow controller is included—its control point is reset by a recording

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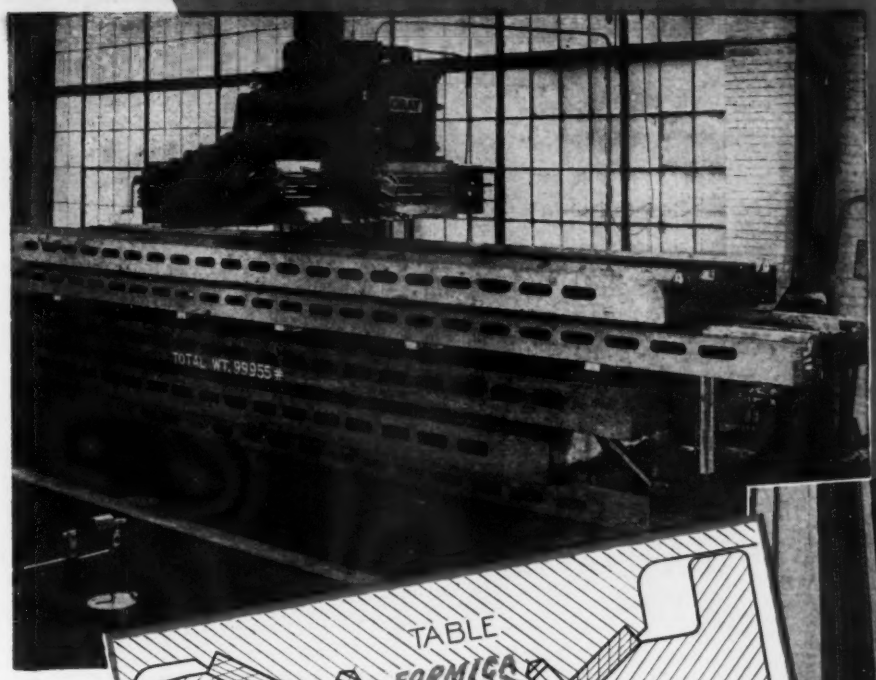

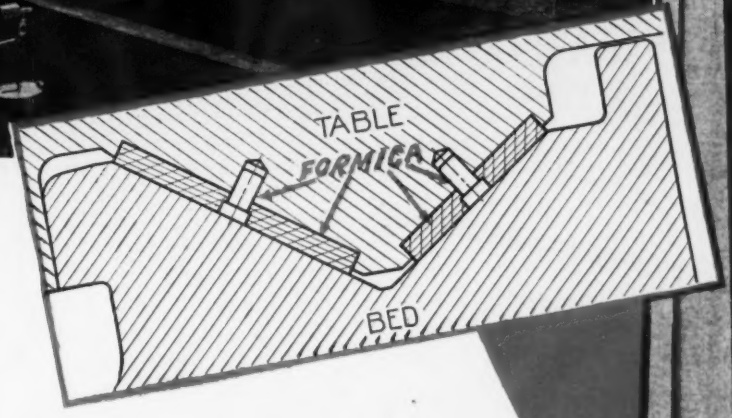

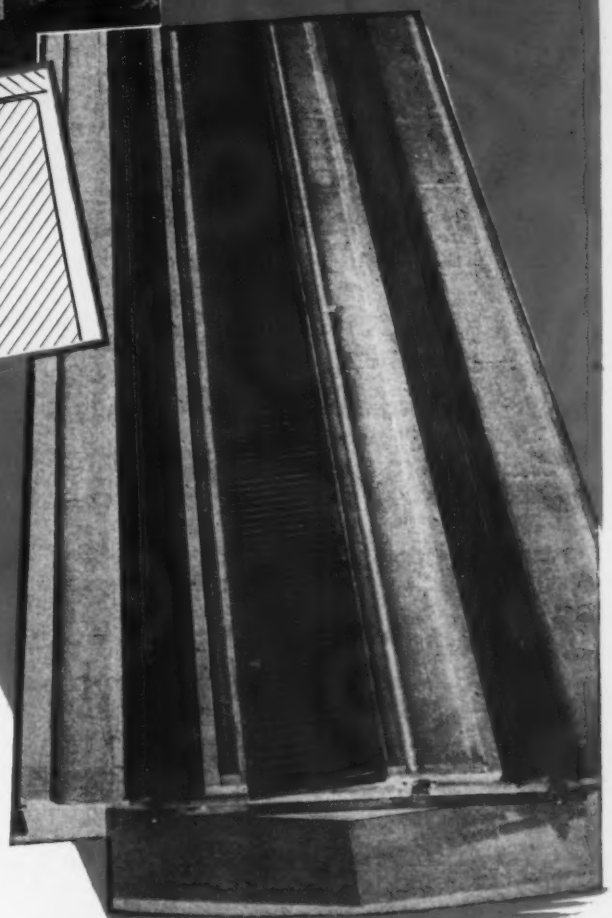

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potentiometer controller actuated by a thermocouple which measures continuously the temperature of the entering cloth. If the entering-cloth temperature drops, the potentiometer controller immediately repositions the control point on the flow controller so as to increase the steam flow to the J-box.

In J-boxes of a second type, steam-flow control is accomplished by the same method, without the recording steam-flow controller—the steam valve is regulated directly by the recording potentiometer controller.

Sensitivity and speedy response are provided by the electronic-type instrument in both of the control arrangements outlined, thus assuring the rapid corrections required for the smallest deviations in entering-cloth temperature. One distinct advantage of this type instrument is well exemplified in its facilities for multiple check readings of temperature throughout the J-box. Any optional number of thermocouples can be connected to the instrument by simple wiring. The standard arrangement is preferably two check-point locations.

SQUEEZE - ROLL - LOADING CONTROL. Correct squeeze-roll pressure is an important factor for successful and economical range operation. Pneumatic roll loading is normally employed because of ease and flexibility of adjustment. Upon leaving a washer, the cloth must have its moisture content lowered sufficiently to insure an absorption of approximately its own weight of solution when passing through the saturators. Proper roll loading also reduces the dilution of saturator solutions by carry-over from the preceding step in the process, and avoids depletion by the cloth carrying away an excess of solution as it leaves the saturator.

A control station, installed at each washer and saturator, enables operators to observe the squeeze-roll pressure on a dial-type indicator. Operation of a transfer valve provides any remote roll loading adjustments necessary. In the event that a record of squeeze-roll loading is desired, a two-pen recording pressure gage is added, mounted on the central control panel, each pen providing a permanent record for each set of rolls.

A properly conditioned steam supply is essential to the satisfactory performance of the continuous-bleaching range. For example, superheated steam contacting the cloth will cause a certain amount of "drying out" of the bleaching chemicals, resulting in incomplete chemical reaction, while wet steam will leach out the chemicals, giving the bleached cloth a spotty appearance. Best results are obtained

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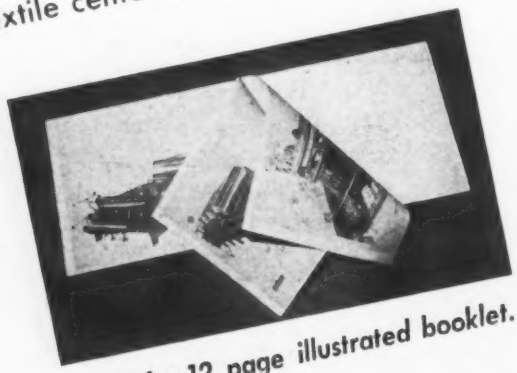

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when dry, saturated steam strikes the cloth.

An indicating pressure gage, measuring steam pressure at a point immediately adjacent to a temperature measuring thermocouple in the steam line, affords a means of checking on steam quality. When necessary, a pressure reducing and desuperheating arrangement is provided.

CONTROL INSTRUMENTS. All instruments shown, with the possible exception of the pressure gage for checking on steam quality and the tachometers for measuring cloth speeds, are of the recording and pneumatically operated controlling type. Such controls provide permanent records which greatly facilitates shifting the range to handle various kinds of goods. Charts of past runs enable the operator to set the controls for any type of cloth previously run. Control setting is quick and positive, eliminates trial-and-error methods, and assures the production of high-quality, uniformly bleached cloth. Electric-pneumatic relays, interposed between the electric drive and the pneumatic-control system, cut off all water and steam supply to the range in the event of electrical shutdown.

The use of the electronic instrument with thermocouple actuation, in preference to the thermometer-type instrument at all points in the range where temperatures must be measured and controlled, is justified by the high speed and relatively small capacity of each component stage.

Electronic Beam Warper

(*Continued from page* 121)

Each of these factors exerts an influence, and each contributes in an amount which is continuously varying throughout the building of a beam. The magnitudes of these variations are difficult, if not impossible, to measure. However, by test on the over-all system, it has been found that the solution to the problem of maintaining tension satisfactorily constant resolves itself simply into the matter of holding yarn speed constant as the beam diameter increases.

An obvious first approach, and one which has been in wide use in the past, involves an arrangement in which the beam is propelled by driven rolls pressing on the surface of the wound yarn. Because the yarn is inevitably scuffed in such arrangement, and because there is growing emphasis on quality production, particularly in the synthetic-yarn field, that type of drive has been losing favor. With the development of demand for spindle-wind beamers, it became necessary for machinery manufacturers to develop

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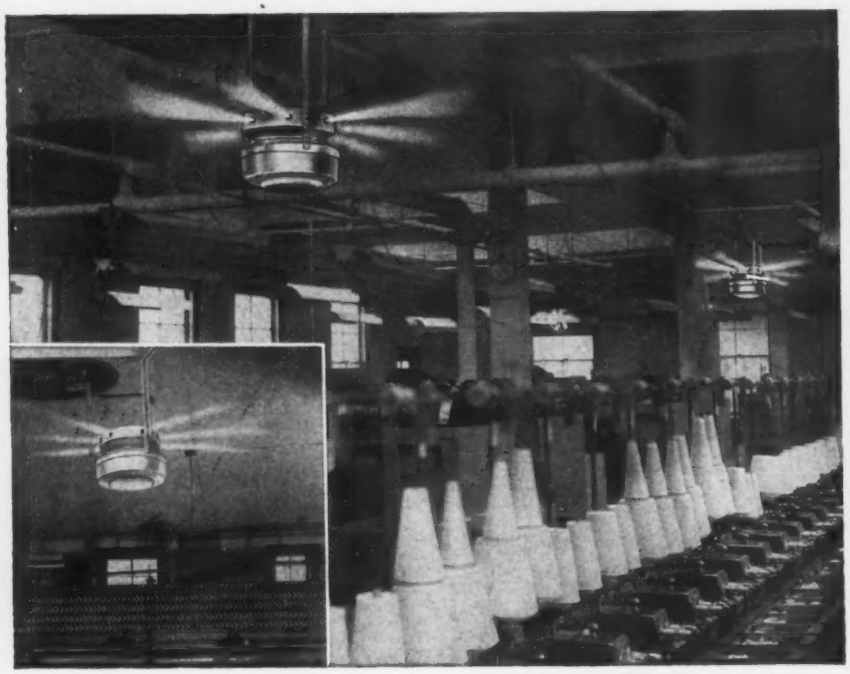

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means for automatic and continuous adjustment of motor speed as beam diameter increased. This led to the application of constant-speed a-c. motors with lever-operated mechanical speed changers and, later, to the use of rheostat-controlled d-c. drives. In both methods, the controlling device is actuated by the compress roll; and, since this is only a position indicator (a means of measuring diameter), it is capable of controlling speed only approximately. Imperfections in the design of the mechanical linkage between compress roll and control device, variation due to subsequent mechanical wear and maladjustment of that linkage or of the speed changer, and changes in speed regulation of the motor for any of several possible reasons, all contribute to inaccuracy.

With the new electronically controlled drive, the assembly embodies a means for continuously measuring the yarn speed directly and for using the signal thus generated to control the speed of the driving motor. The source of the speed signal is an accurate d-c. tachometer-generator which may be coupled either to the delivery roll or to the shaft of the compress roll. The yarn passing around the delivery roll (or in contact with the compress roll) causes the roll to rotate at a speed directly proportional to yarn speed.

Since the electric output of the tachometer-generator is proportional to the rpm. of its rotor, there is thus made available a voltage signal whose magnitude varies directly with yarn speed. The signal is fed to the Thy-mo-trol panel and is there compared electronically with a voltage reference standard. Any difference between the tachometer signal and the standard is employed to adjust automatically the speed of the beam-driving motor. Therefore, as the beam diameter increases and there is a need for gradually decreasing motor rpm., the tachometer-generator furnishes a continuous signal to adjust the speed control and accurately satisfy the requirements.

This type of control, known as a "feed-back" system, or servo-mechanism, obviously circumvents the undesirable features of previous drives. The solution is straightforward, precise, and dependable.

A Textile Job

(*Continued from page 115*)

plants in the South, the facilities of the United States Employment Service have been available to all employers, employees, and unemployed persons seeking work. The interviewers have been trained in all phases of em-

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ployment service work. They have also kept in close touch with textile officials in order to determine their labor needs; they have observed the workers in the performance of the various jobs in the plants; and have made, in some plants, job analyses so that the employers' orders may be filled more satisfactorily. During the war years when there was a stringent labor market, the primary task of U.S.E.S. was the supplying of these plants with an available labor and the carrying out of the regulations of the stabilization program of the War Manpower Commission.

Because of the relationship which has existed between the textile plants and the personnel of U.S.E.S., it has been possible to secure an unbiased opinion of the advantages of jobs in these plants. These advantages will be considered under the following headings: wages, hours of work, working conditions, plant and community facilities, and insurance coverage.

WAGES AND HOURS As living costs advance, the scale of wages in the plants is raised to provide more "take home" pay for the employes. At present, the scale of pay for textile jobs is higher than that of so-called "white collar" jobs. This is especially true on the semi-skilled and skilled jobs. See the tabulation on page 178 for rates currently being paid.

Giving vacations with pay and giving bonuses to employes who have been with the companies for a specified length of time are becoming general. Provision is usually made whereby the employe who has served in the armed forces and has returned to work after an extended absence can benefit also by these plans. The vacation period is usually of about one week's duration, and the bonus in some instances is as high as 2% of the entire year's earnings.

Since the cessation of hostilities most establishments have reduced the total work week from 48 hr. to 40 hr. In almost every plant, two full shifts and a skeleton third are operating five 8-hr. days. However, in some departments, because of a shortage of workers, it is necessary to run 48 hr. Time-and-a-half pay, of course, for all hours in excess of 40 is drawn by all workers whose wages are paid on an hourly or piece-rate basis.

In a few of the smaller plants, the workers alternate on shifts. In all of the mills, persons already employed are given preference of first and second shift work. This, of course, means that at the present time the job openings are almost without exception on second and third shifts. No matter on which shift the worker is employed, however, the 40-hr.-per-week schedule gives him ample time to attend to per-

Here's how a South Carolina mill speeds their materials handling. No delays, no soilage, no door damage . . . not even necessary to slow the "buggy" down. Stanley Magic Doors open and close automatically.

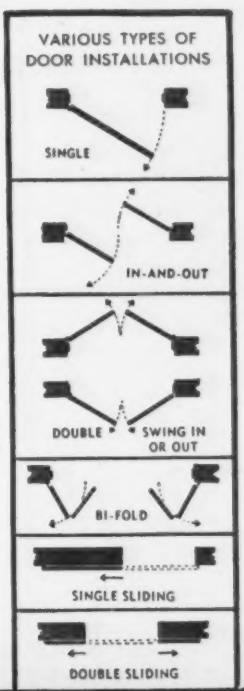
KEEP THIS EYE

on your handling costs

EVERY instant one of your workers spends opening or closing an ordinary door costs you money, regardless of how efficient your flow chart and equipment may be. Put a time study man at one of these doors for a day or two. Check how much time is lost, then convert this into dollars per year, multiplied by the number of doors in your plant.

And you can add to this the loss from product soilage and damage when trucks are used to bang open doors.

With Stanley Magic Doors all this loss is prevented. Photo electric eyes automatically open and close doors, speed traffic *safely* and guard the efficiency of heating and air conditioning systems. *Write for additional information. Stanley Works, Magic Door Division, New Britain, Connecticut.*



STANLEY
Trade Mark

STANLEY MAGIC DOORS
Require No Hand to Open

Textile Printer Orders—
500 METLKOR BRUSHES

A textile printer, possibly the largest in the United States, tried their first Jenkins "Metlkor"* nylon-bristle furnisher brush 5 years ago.

They have bought many more since the first furnisher brushes passed the test of use. These brushes proved easy to wash and clean. They did not bleed.

The other day, these people bought 500 "Metlkor"* brushes and are standardizing them for all their printing machines.

*Reg. U. S. Pat. Office.

THE METAL CORES

are made from cold drawn steel or aluminum. They cannot split or sag, as wood cores do. Worn bristle can be removed and new bristle wound on whenever required.

NYLON BRISTLE

is wound on the metal cores by a patented process, with flat copper wire and special moisture-proof cement. There is no place for dyestuff or dirt to lodge when brush is cleaned.

Send for a copy of our 20-page two-color catalog illustrating "Metlkor" furnisher brushes and other Jenkins brushes.

M. W. JENKINS' SONS, INC.
CEDAR GROVE, ESSEX COUNTY, NEW JERSEY

Since 1877 manufacturers of industrial brushes exclusively.

sonal business, to have an opportunity to rest, and to relax. Female employes can also carry on their domestic duties.

All plants are adequately lighted by combined natural and artificial means. The buildings are planned with a view to furnishing ample ventilation. In some departments, it is necessary to have a certain amount of heat and humidity. To make the working conditions in these departments as comfortable as possible, special air-conditioning systems have been installed in some plants. In other departments, large suction fans keep the temperature during the summer months as low as possible.

Every precaution is taken to prevent accidents. New employes are given special instruction in the operating hazards of the job, and for several days after the applicant first begins to work, he is watched very closely. Some machinery is equipped with safety devices which automatically stop the machine should an accident occur. In some of the plants, a safety department with a registered nurse on duty functions for each shift. Minor accidents are treated by the nurse at the first aid stations and persons seriously injured are taken to local doctors or to local hospitals.

A health certificate signed by a physician is required by some of the employers. This precaution is taken for the protection of the persons already working in the plant as well as for the prospective employe.

A worker is not required to give 8 hr. uninterrupted attention to the operation of his machine. He is allowed

WAGE RATES PAID IN YORK COUNTY, S. C.

HOURLY RATES	Range
Entry minimum, unskilled	$0.66½ to $0.73
Loomfixers	1.03 to 1.16½
Knitting fixers (f.f.)	1.65
Section men	1.02 to 1.16½
Foremen	1.17 and up
Knitters	1.60
Inspectors	0.75
Menders	0.65
Printers	1.23 to 2.43
PIECE RATE	**Averages per hr.**
Spinners	$0.73 to $0.83
Weavers	0.88½ to 0.94½
Speeder tenders	0.75 to 0.84
Boarders	0.86
Preboarders	1.10
Pairers	0.75
Card tenders	0.70 to 0.77
Slubber tenders	0.75 to 0.81
Spoolers	0.73

(Not included is 5¢ per hour additional when paid for third-shift work.)

Ready to Go... REGARDLESS OF RAIN

Thanks to AQUAROL

REG. U. S. PAT. OFF.

The ultimate in water-repellent finishes

AQUAROL is now available for civilian use for weather proofing fabrics, giving the same protection to the fabrics as given to our Armed Forces.

Mill men know that to specify Aquarol is to assure high water-repellent efficiency for overcoatings, ski suits, sport jackets and slacks and all kinds of rainwear fabrics.

Aquarol will assure customer satisfaction and added sales value without increasing finishing costs.

Produced to meet government specifications during the war and now to meet the demand of the public.

ARKANSAS CO., INC.

Manufacturers of Industrial Chemicals For Over 40 Years.

NEWARK NEW JERSEY

LOWELL

SHUTTLES

DOGWOOD OR
PERSIMMON—
FIBRE COVERED
OR PLAIN

BOBBINS

MAPLE, BIRCH
OR BEECH

A HALF CENTURY OF EXPERIENCE

Experience is the best teacher and this company has had half a century of it in manufacturing shuttles and bobbins for all fibres.

All wood for Lowell Products is well seasoned and kiln dried. Every operation is performed in our own shop to control quality and speed up deliveries. Any desired finish can be furnished. May we hear from you?

LOWELL SHUTTLE COMPANY

Established in 1896

15 TANNER STREET • • LOWELL, MASS., U.S.A.

time off to rest when it is not necessary for him to be right at the machine. He can go outside to smoke or to eat his lunch. In most plants, if the employe does not bring his own lunch he can buy milk, soft drinks, sandwiches, crackers, etc., from the "dope wagon" which is sent into the departments on regular schedules.

VILLAGES. Included in most mill properties are houses equipped with water, lights, and other modern conveniences, which are rented to the employes at a nominal figure. A crew of workmen keep the houses in good repair at all times. Most of the lots to each house are large enough for the renter to have a vegetable garden, if he wishes, or for his wife to cultivate a flower garden. These villages are laid out in streets which are in most cases paved and bordered with trees. There is usually a large boarding house operated under the supervision of a responsible person. Unmarried employes can secure room and board at a reasonable cost.

In normal times, most of the plants can make satisfactory housing arrangements for their employes. Although there is now an acute shortage of housing facilities, mill owners are making every effort to improve this condition. One of the largest plants has at present three contracts for the construction of two types of dwellings. The first contract, on which construction began about the first of May, 1946, called for 34 pre-fabricated and 25 brick houses. Since that time, two additional contracts, each for 25 brick houses, have been let. Because of a scarcity of building materials, however, this work has been very much delayed.

Usually, each textile village has one or more wooden or brick churches which are served by their own pastors or pastors from the neighboring town or city. Grammar schools are operated in several textile communities for accommodation of the school-age children of the employes. The school building is furnished by the plant, and the teachers are paid by the state and county and must have the same qualifications as those teaching in the city schools. In the villages where there are no schools, the pupils are transported by school buses to the nearest grammar or high schools.

During the past war years when there was a serious shortage of workers for the textile plants, nurseries for preschool children of the textile village were also operated in several plants. The children had the best of care and were given well-balanced lunches; they were put to bed for naps, and were taught as in any other schools of this kind. For a reasonable amount each week, the mothers could be assured

Announcing

BRITISH INDUSTRIES FAIR

LONDON & BIRMINGHAM, MAY 5—16, 1947

This is your first opportunity in seven years to see your old suppliers in Britain and to meet new ones.

Overseas Buyers are invited to Britain for the 1947 British Industries Fair. It will enable them to establish personal contact with the makers of the immense range of United Kingdom goods displayed in the London (Lighter Industries) and Birmingham (Hardware & Engineering) Sections of the Fair. The careful grouping of exhibits will assist buyers to compare the products of competing firms with a minimum of time, trouble and expense. Special arrangements to suit individual markets can be discussed and terms and conditions of business settled direct with the manufacturer, since only the actual producer or the sole selling agent may exhibit.

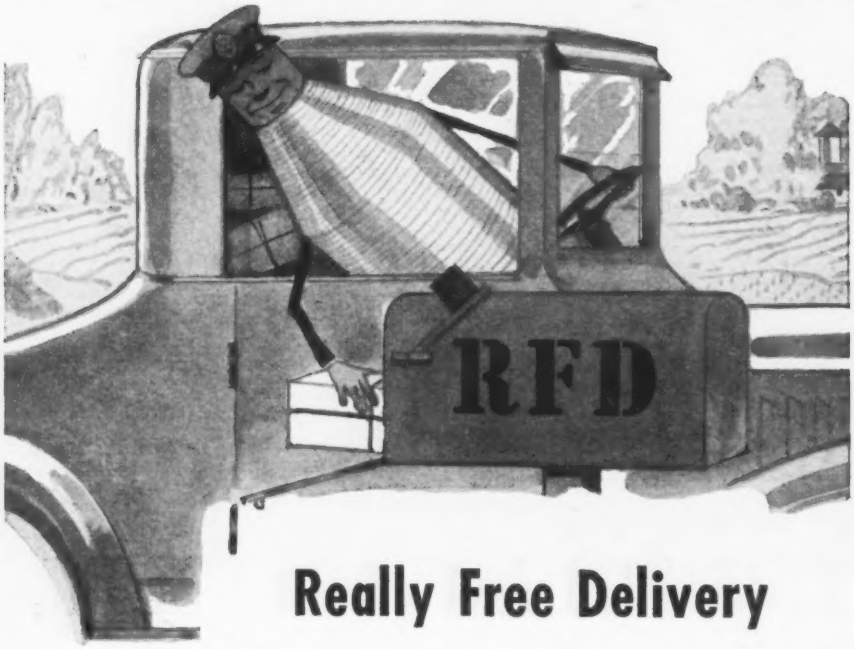
★ *For full details of the* 1947 *Fair apply to the nearest British Commercial Diplomatic Officer or Consular Officer, or the British Trade Commissioner in your area.*

BRITAIN PRODUCES THE GOODS

TEXTILES and CLOTHING
Will be shown in London

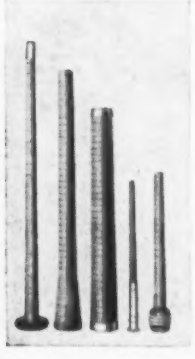
A·P·T· YARN CARRIERS

From Material to Design—
Built to Industry Requirements



Really Free Delivery

To the nation at large RFD means "rural free delivery". To textile mills which use A.P.T. Yarn Carriers it means "really free delivery." Reasons include elimination of static and absence of distortion. At the same time delivery is controlled because of deep well rounded corrugations in the barrel.



The barrel of an A.P.T. Yarn Carrier is made of laminated paper, wound around a former of the same size and dimensions as the spindle on which the carrier will be used. It is impregnated for moisture resistance and hardened by baking.

Thus the barrel is always concentric with the spindle, has perfect balance, and STAYS that way.

Other industry requirements for the perfect yarn carrier which A.P.T. Products satisfy are: Freedom from splintering or chipping, perfect spindle cling, high resistance to splitting, light weight, great strength, and low ultimate cost.

Give these superior carriers a chance to improve the quality of your production and to reduce costs. They are adaptable to the spinning, twisting or weaving of all types of fibres.

AMERICAN PAPER TUBE COMPANY

ESTABLISHED 1898 • WOONSOCKET, RHODE ISLAND
SALES OFFICES—GREENVILLE, S. C., NEW YORK, CHICAGO

that their children were receiving the best of attention during the 8 hr. while they were at work. A few of these nurseries are continuing to function. As in any other village, the church and school play an important part in the life of the mill community.

Several companies have installed and others are planning to operate cafeterias in the plant on a cost basis, or, if on a profit plan, the net income goes into a welfare fund for the benefit of employes. These cafeterias have the most modern equipment and are operated and supervised by capable persons.

Almost without exception, the textile plants are located inside the town or city limits. If they are not within comfortable walking distance from the stores, moving-picture theatres, banks, and other business houses, city buses operate on a regular schedule from the streets in the industrial village to the main district of the neighboring community.

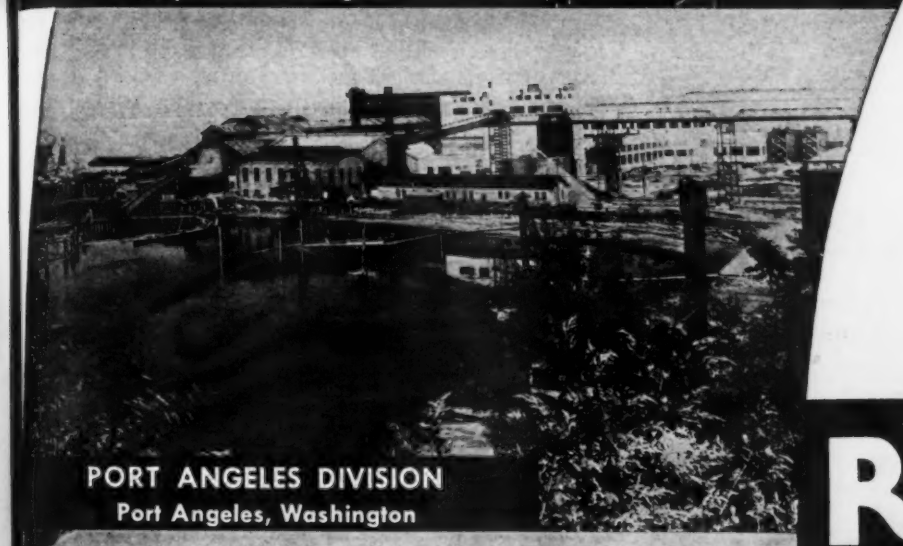
INSURANCE. All employes are covered by workman's compensation at no cost to the worker. Depending on the circumstances and extent of the injury, various benefits are paid the injured person or his family. Hospital bills, weekly payment of a part or the entire amount the worker would have earned should he have been at work, and the payment of a sum of money are some of the benefits he can receive.

Under the Social Security Act, the worker is covered also by Old Age and Survivor's Insurance. Each pay day, a tax of 1¢ of each dollar earned is deducted from the employe's wages. The employer is also taxed an equal amount on each of his workers' earnings in order to build up a reserve fund out of which benefits are paid to the worker when he reaches the age of 65, or to his dependents in case of his death. Recent legislation has been enacted whereby the widow and children of veterans are paid funds, provided the ex-service man has received an honorable discharge after a 90-day or longer period of service and dies within 3 yr. after his discharge.

The Social Security Act also provides for State Unemployment Compensation Benefits for the textile employe. This coverage is at no cost to the worker in the state of South Carolina. The employer pays a tax which sets up a fund, benefits from which are administered by the state Employment Security Commission.

Group insurance at low premium rates is also available for the worker. This can insure him and his dependents and covers surgical operations and hospital benefits, hospital benefits where no operation is performed, benefits payable in the event of childbirth

GRAYS HARBOR DIVISION
Hoquiam, Washington



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Mills: Hoquiam, Port Angeles and Shelton, Wash., and Fernandina, Fla

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DISSOLVING PULPS

for conversion into

Rayon ★ Tire Yarn ★ Cellophane
Photographic Papers
and other
Cellulose-Base Products

FERNANDINA DIVISION
Fernandina, Florida

When Trouble Hits the Ceiling

Water vapor condensing on roof members causes trouble aplenty if building materials used there can't stand moisture. Upkeep costs skyrocket.

Use Wolmanized Lumber* and another of your worries disappears. It's standard structural lumber, pressure-impregnated with Wolman Salts* preservative, making it highly resistant to decay that's fostered by the presence of moisture.

FOR FLOORS, TOO

You head off decay, reduce maintenance costs, by setting your floor on Wolmanized Lumber subflooring and nailers.

Wolmanized Lumber gives the builder all of wood's advantages—speed of erection, light weight, resilience, high insulating value, paintability, low first cost—plus long life.

*Registered trademarks

1672 McCORMICK BUILDING, CHICAGO 4, ILLINOIS

and lacerations (the suturing of non-occupational wounds). In one plant, the cost of the insurance is paid entirely by the plant and the workers pay no part of the premiums.

In addition to those already mentioned, there are many other advantages which jobs in textile plants have to offer. Some of them are the opportunity to learn a job at no cost to the worker and to be paid wages during this training period, the increase in the scale of wages as the employe's skill increases, the opportunities for advancements, the stability of the jobs, and the lack of opportunity to exploit labor. In view of all the facts given, we feel that before refusing a job in a textile plant in this country, a person should give the matter serious consideration.

New Opener Room

(*Continued from page 105*)

The third No. 11 condenser operates at these speeds:

Fan	1,040 (rpm.)
Screen	70
Doffer	272.

From this condenser, the stock is delivered to a vertical Centrif-Air Superior cleaner operating at a beater speed of 475 rpm. An inclined gyrator carries the cotton to a horizontal gyrator where stock from the four opening lines is combined. From this gyrator, the cotton, is taken to the picker room, if the stock is going into white work, or to the baling press, if it is to be dyed.

WASTE REMOVAL. Each unit in the opening line was selected for its ability to accomplish a certain task, such as blending, extracting dust, opening, cleaning, or removing metal from the stock. Waste extracted amounts to 3.39% and is of a very low type. Tests have revealed that only an insignificant percentage of it is white fibers; most of the waste is composed of dirt and motes.

The extraction of dust has shown a marked improvement with the new equipment. When the old opening system was in operation, three bales of motes were removed from the dust house each week. Eight bales of this type of waste are now removed each week.

The machinery is equipped almost entirely with ball bearings that require lubricating at periods of one to six months. Only eight open-type bearings are now in use.

Another desirable feature of the new layout is the manner in which it is wired. Considerable time is saved in starting up the machinery by an ar-

From this . . .

Fabrics with a *future!*

If ever the quality of water was important to the textile industry, it is now when so much is being done with chemical processing.

The impurities water contains could interfere with chemical reactions and affect the quality of finished fabrics. Permutit* removes these impurities.

Today many mills control the quality of their process water —and of their woolens, cottons, silks and rayons—with Permutit Water Conditioning Equipment.

* Plan *now* for more efficient mill operations and finer fabrics. Write for the facts on controlled-quality water to The Permutit Co., Dept. TW4, 330 West 42nd St., New York 18, N. Y., or Permutit Co. of Canada, Ltd., Montreal.

*Trademark Reg. U. S. Pat. Off.

Better water makes BETTER FABRICS!

PERMUTIT

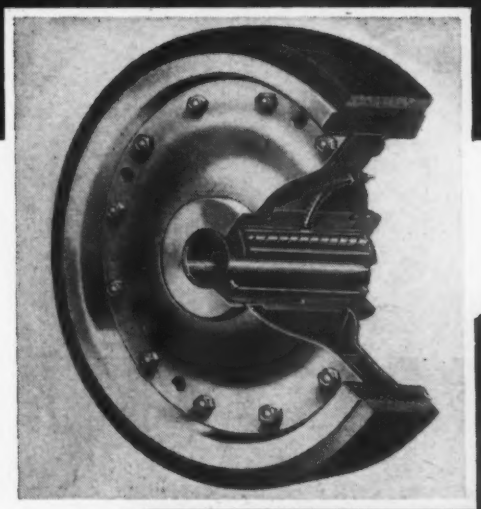
WATER CONDITIONING HEADQUARTERS

An EXTRA MEASURE of QUALITY

DARNELL
CASTERS & WHEELS

- Wearing parts carbonized and hardened
- *Patented* Double Ball-Bearing *Swivel*
- Maximum floor protection means savings
- Will increase efficiency of employees
- Made in any size for any type of use

DARNELL CORP. LTD. 60 WALKER ST. NEW YORK 13 N Y
LONG BEACH 4. CALIFORNIA 36 N. CLINTON CHICAGO 6 ILL



An EXTRA MEASURE of QUALITY

rangement that requires the pushing of only four switches, one for each opener line. A master switch permits the entire room to be stopped off in case of fire or other emergency by throwing only one switch. Versatility is attained by a circuit arrangement that provides each machine with an automatic hand-off switch, so that an individual machine may be stopped for repairs or other purposes.

Lighting circuits were also changed to accommodate fluorescent lights; and the sprinkler system was revamped and new-type fog nozzles were installed on the hose lines and sprinkler heads to give a more effective blanket of water during a fire.

Modern Mill Buildings

(*Continued from page 117*)

MILL FLOORS. The preferred floor for textile mills is wood, usually consisting of sleepers on concrete, then sub-floor and finish floor. Unless extraordinary precautions are taken in waterproofing the concrete sub-base, the sleepers will rot out in from 5 to 15 yr. Strip flooring factory assembled in square blocks and laid directly on concrete in asphalt mastic, has been used with some success, but great care must be taken in thoroughly waterproofing the concrete and in providing expansion joints.

Vertical-grain wood-block flooring is not generally used for textile mills because of the rough finish.

The best type of textile-mill wood flooring, which provides a solid base for lagging machines to wood and which will last indefinitely if properly constructed, is produced by starting with a sub-base of crushed stone, rolled with a power roller to a thickness of 6 in. after compaction. This sub-base is penetrated with emulsified asphalt; it is covered with a layer of hot mastic into which, while hot, are placed square-edged planks, tamped to a level surface. This sub-floor is used as a working surface until the building nears completion, when the finish floor is laid diagonally.

The best finish floor is maple, with other hardwoods such as beech and birch a close second. Such flooring is graded No. 1, No. 2, No. 3, is usually cut 25/32 or 33/32 by 2¼ in., and is tongued and grooved. The thicker flooring should be used for hard service.

In laying flooring, care must be taken to provide for expansion around the outside. A steel angle placed at the junction between floor and wall, and screwed to the floor with countersunk wood screws, makes a good base and serves to cover the expansion joint at the wall. In case of shrinkage, the

grasp these savings

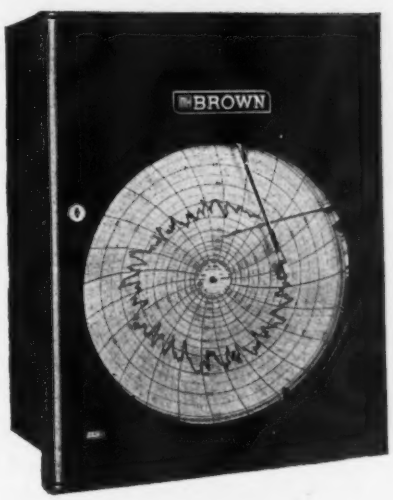
in FUEL DOLLARS !

STEAM ACCOUNTING LOWERS COSTS IN TEXTILE MILLS

Consider the savings in fuel dollars made possible by just a few percent reduction in steam waste. In textile mills, where steam costs are unusually high, savings made through the use of the Brown Steam Accounting System are considerable.

Brown Totalizing Flow Meters are the basis of the Brown Steam Accounting System. These flow meters enable you to figure steam costs for every department. They show where the steam is going—and where it is being wasted. Permanent chart records show rate of flow, enabling you to correlate steam load with textile production. The automatic planimeter pen records the amount of flow, making it possible to analyze steam consumption during any period. The integrator totalizes the flow.

Many textile mills report substantial savings in fuel dollars after installation of the Brown Steam Accounting System. Let us show how it can do the same for you. Write for complete information. THE BROWN INSTRUMENT COMPANY, a division of Minneapolis-Honeywell Regulator Company, 4509 Wayne Avenue, Philadelphia 44, Pa. Offices in all principal cities.



Brown Electric Recording Integrating Flow Meter

TORONTO, CANADA
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LONDON, ENGLAND
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BROWN FLOW METERS
. . . MINNEAPOLIS-HONEYWELL CONTROL SYSTEMS . . .

HILD Floor Machines

Left—HILD Tank Type Shower-feed Floor Machine

KEEP ALL YOUR FLOORS *Clean* AND *Slip-Safe*

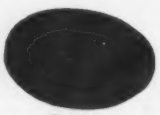
Right—HILD Plain Handle (Standard) Floor Machine

HILD Floor Machines are designed for use with the easily interchangeable attachments pictured below to condition and maintain floors of all kinds . . . either in the mill or in office areas. Scrubbing with the Tank-Type Machine and the patented HILD Shower-feed Brush gets floors cleaner with less scrub-soap solution . . . cuts soap costs . . . does not splash water on machinery or furniture. Scrub-soap solution is fed from the tank on the handle of the HILD Floor Machine to the back of the Shower-feed Brush . . . then passes through accurately spaced holes penetrating the brush back between each row of bristles.

HILD Floor Machines speedily scrub open areas in lanes between machines . . . yet are easily guided into hard-to-reach spots under and around machinery. They are sturdily built for long, trouble-free service.

HILD Shower Feed Brush

Brush for Waxing or Polishing



Polishing Buffer

Steel-wool Pad and Holder

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HILD FLOOR MACHINE COMPANY

1313 W. Randolph St., Dept. TW4, Chicago 7, Ill.

ANDREW K. HENRY

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BOSTON 10, MASS.

screws may be removed and the base adjusted.

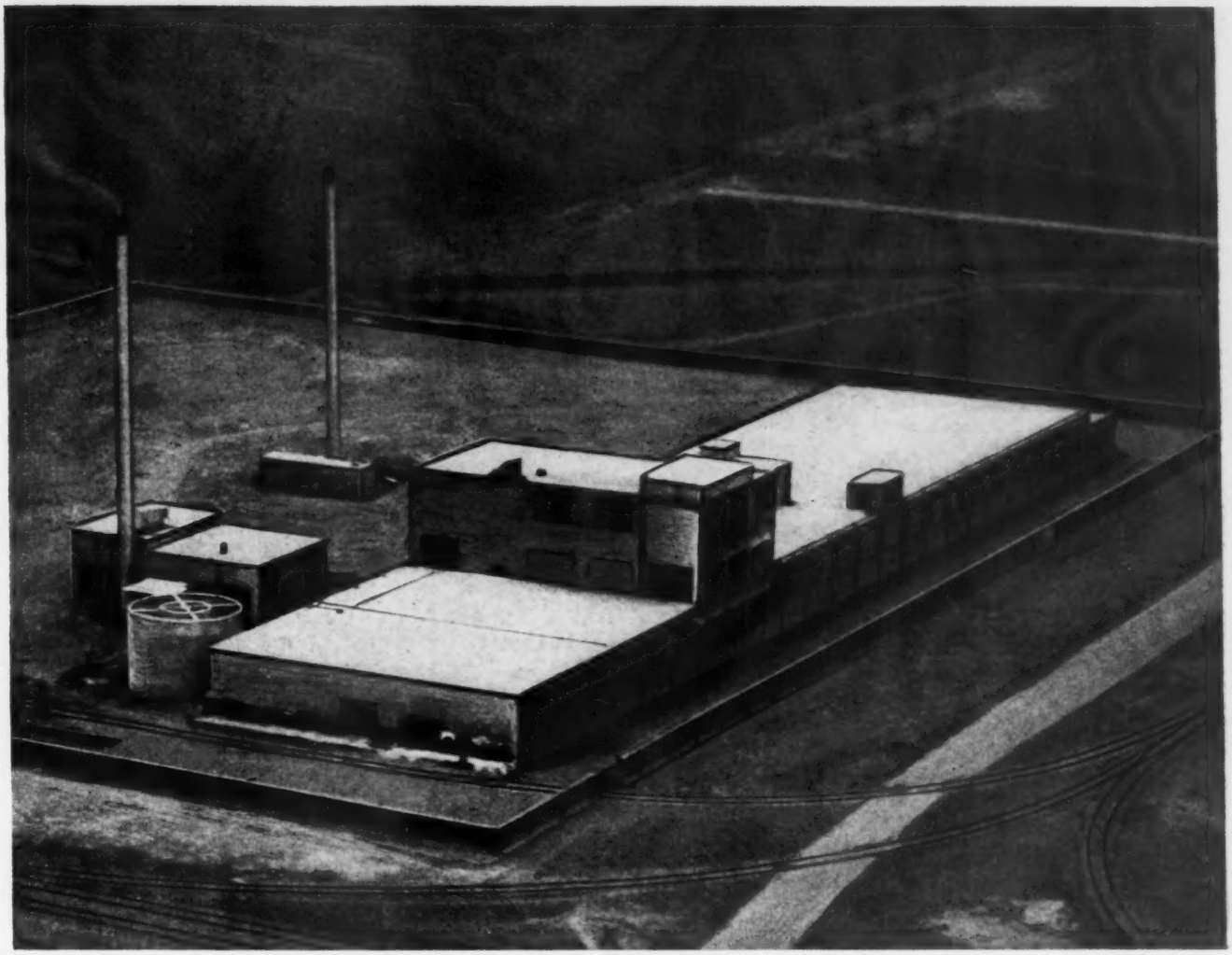
MASONRY MATERIALS. The materials for masonry walls are brick, concrete blocks, hollow tile, and glazed tile. These materials can be used in about any combination desired, depending on the character of the building and the availability and cost of the various materials in the locality.

The most desirable outside masonry finish is brick, which can be given architectural effect by its simplicity; or wall surfaces can be treated by horizontal-band courses or pilasters in the same material or in contrasting material such as limestone, as in the weaving mill for Bloomsburg Mills, Inc., which is shown in the headpiece. Glazed tile may be used effectively in warm climates; alternate freezing and thawing in colder climates may tend to chip.

For inside finish, brick, concrete block, or smooth hollow tile may be used, but these require periodic painting to produce the best results. Painting is a maintenance expense but is compensated for by the freshening up produced and by the attractive interiors resulting from modern color schemes. The mill interior which is painted plain white is a thing of the past. The modern mill is painted in pleasing pastel shades; sharply contrasting colors for machinery tend to reduce accidents. Glazed tile produces an attractive interior, and the color and finish is permanent.

It should be remembered that the function of the wall in a windowless building is not structural. Its purpose is the same as that of the roof; to protect against the elements. Though the period of the windowless building has been short, already the so-called dry-wall type of construction has been used quite extensively; and, as better materials at less cost are developed, it is within reason to expect that masonry may almost entirely disappear from industrial building. The production of materials which require little or no upkeep and which lend themselves to architectural treatment is hastening this type of construction. Mass production, leading to lower costs in prefabrication, coupled with continually rising cost of field labor, will very soon make it possible to build permanent dry-wall construction as economically as masonry.

In dry-wall construction, the finish of the interior becomes a problem. One of the answers is to use the same construction as that used for non-masonry interior partitions; steel or asbestos board. A new material coming rapidly into use is rigid insulation covered on both sides with asbestos board. This material is furnished in large sizes and



The First Rayon Plant in Peru—Designed, Erected and Put Into Operation 1945-46 by Oscar Kohorn & Co., Ltd., Pioneers of the Rayon Industry

Now Building and Operating Plants in Brazil, Chile Egypt, Peru

Oscar Kohorn & Co., Ltd. is the world's oldest and largest builder of filament rayon and staple fiber plants. We design the entire project, install the machinery and operate the plant until the owner's organization is trained. We manufacture a full line of improved, shortened and continuous process rayon machinery. One contract with Kohorn covers the entire project and provides a reliable indication of costs. We guarantee product quality, production quantity and raw material consumption. These special features of rayon plant building and operating skill are available only from Kohorn. We invite your inquiries which will be treated confidentially.

Write for illustrated brochure describing Rayon Peruana S. A.

OSCAR KOHORN & CO., Ltd.

EXECUTIVE OFFICES

501 FIFTH AVE. NEW YORK

COOPER'S SPRING NEEDLE RIB

The Superior Knit Fabric

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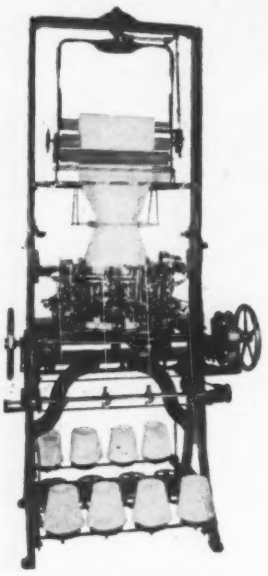
COOPER'S SPRING NEEDLE CIRCULAR RIB KNITTING MACHINES

PENDING REESTABLISHMENT OF PRODUCTION OF THESE FAMOUS MACHINES WE ARE OFFFERING A RECONDITIONING SERVICE THAT MAKES PRESENT MACHINES PRACTICALLY "GOOD AS NEW"

DIA. 13" TO 25"

6 TO 12 FEEDS

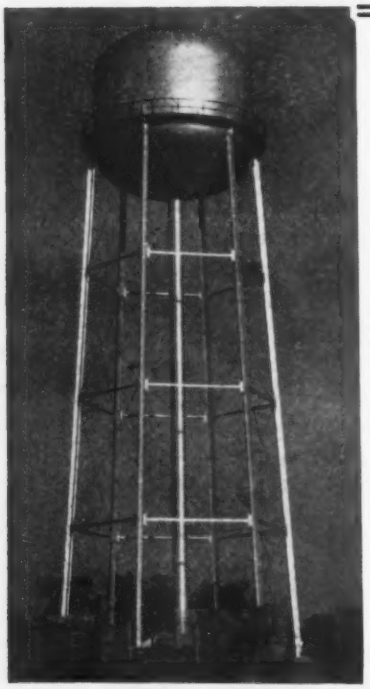


ALSO MANUFACTURERS OF

COOPER'S PERFECT SPRING BEARD NEEDLES AND **COOPER'S** HIGH SPEED NON-TURNABLE RIVET LATCH NEEDLES

CHARLES COOPER CO., INC.

BENNINGTON, VERMONT, U. S. A.



TANKS

For over eighty years the Southern textile industry has looked to Cole for design, fabrication and erection of elevated tanks for sprinkler and general service.

Also for the design and fabrication of bleaching kiers, starch kettles, and vats and vessels of all types—in stainless steel, Monel metal, special alloy steels and kindred materials.

Our experienced engineering department is at your service. Write for our general catalog—"Tank Talk."

R.D. COLE MFG. CO. Newnan Ga.

ESTABLISHED 1854

can be erected without joints from floor to ceiling.

In the modern, windowless textile building, particularly in the colder climates, insulation is required in both masonry and dry-wall construction. In dry-wall construction, most of the manufacturers are producing insulated wall sheets.

COMBINATION CONSTRUCTION. Under present conditions, best results can be obtained by using a combination construction such as that used in the new Duplan nylon-throwing mill at Winston-Salem, N. C.

This combination construction consists of concrete block or glazed tile on the inside, with 2 in. of Foamglas insulation; the outside is covered with aluminum sheets. This combination provides a good-appearing, serviceable wall on the inside and a permanent, modern, architectural treatment on the outside.

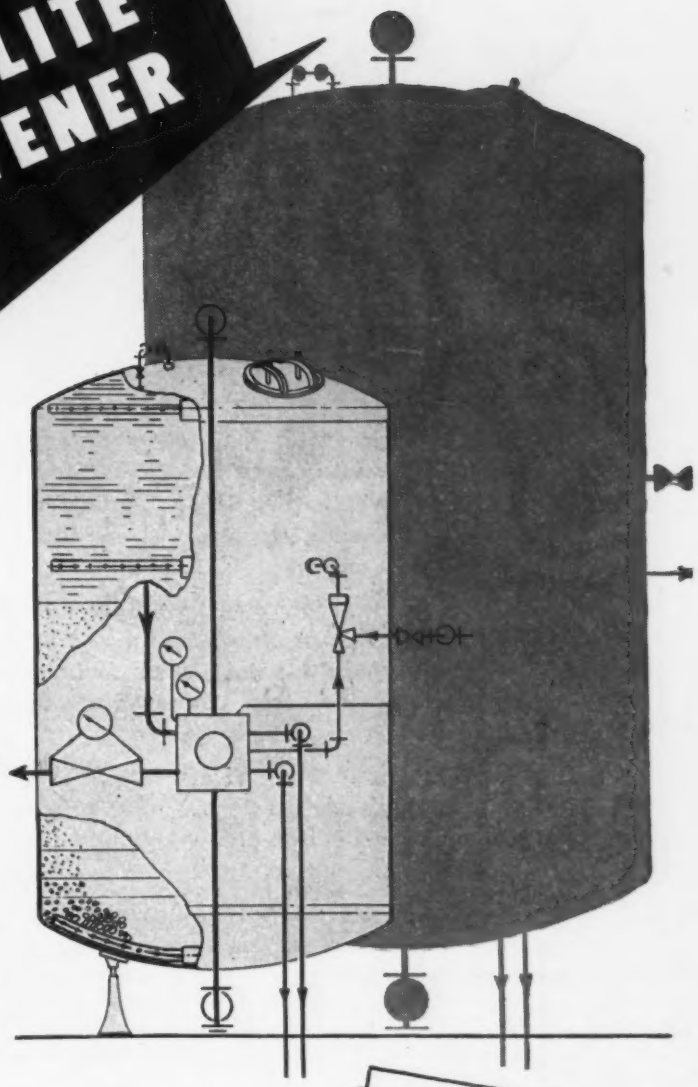
The old tried and true method of roof construction is still used effectively; wood columns, wood girders or trusses, beams, and tongued and grooved plank. Probably the outstanding objections to this type of construction are limitation of spans and shrinkage of plank. Great areas of roof plank have had to be replaced due to premature rotting in the tongued and grooved joints caused by condensation. Such rotting is caused by faulty design in using the insulation factor of the plank instead of placing all the required insulation on top of the plank.

PREFABRICATION TREND. Steel-framed one-story buildings can have longer spans when steel trusses or beams are used for girders and when channels or light beams are used for framing between girders. A type of construction now being used quite extensively is open-truss steel joists for framing between girders; as a matter of fact, they can be obtained 60-ft. long, which again promotes a tendency toward shop prefabrication to compensate for high field-labor costs in erection. In steel-framed structures, wood-plank roof deck may be used; but, at practically the same cost, a fire-resistant, non-shrinkable deck can be obtained.

Insulation on the roof of a textile building carrying a high relative humidity is imperative. Many types are on the market, such as various brands of rigid insulation, Foamglas, Fiberglas, and cork. All types are applied by the roofer and are mopped in with the roofing. A roofing specification should be used which provides a vapor seal to prevent deterioration of the insulation by dampness. Great care should be

(*Continued on page 246*)

LIQUONEX CR gives you greater capacity from your SODIUM ZEOLITE WATER SOFTENER



The effectiveness of your water-softening process depends largely on two factors: the equipment, and the zeolite you use.

If *you* have a Sodium Zeolite system, you can now greatly increase its capacity and reduce its operating cost . . . *with the same equipment* . . . by simply using the new LIQUONEX CR*.

This zeolite has a far greater softening capacity than old-fashioned zeolites, and permits considerably higher flow rates per square foot of area. Because of its greater capacity, it also reduces the frequency of regeneration . . . provides material savings in labor and wash water required. In addition, it is non-siliceous . . . an important factor in avoiding silica deposits in boilers which were caused by silica pick-up from the old-fashioned siliceous zeolites.

***LIQUONEX CR** is one of several types of LIQUONEX Zeolites which have been developed by the LIQUON engineers through their 30 years of pioneering work in the modernization of water-softening processes and equipment.

To modernize . . . improve . . . economize your water-softening operations . . . *with the same equipment* . . . investigate LIQUONEX CR. Write for complete information, without obligation, on this new and more effective zeolite. LC-115

LIQUID CONDITIONING CORPORATION

114 East Price Street, Linden, N. J. • *Engineering Service Representatives in Principal Cities*

Liquon

EVERY PROCESS...EVERY TYPE OF EQUIPMENT
for Conditioning of Water and Other Liquids

PROOF OF "W&G" LEADERSHIP

The original Gibbs Model Invented in the year 1855.

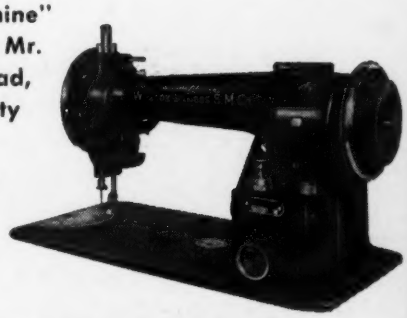
James E. A. Gibbs gave leadership to the sewing machine industry with the chain-stitch. Do you know that when he invented the Single Thread Chain-stitch he had never seen a sewing machine of any kind until he had completed his own model?

Having seen a notice in a newspaper of a "sewing machine" which was described as using *two* threads, it occurred to Mr. Gibbs that if a *reliable* seam could be made with *one* thread, less machinery would be required and thus greater simplicity would be secured.

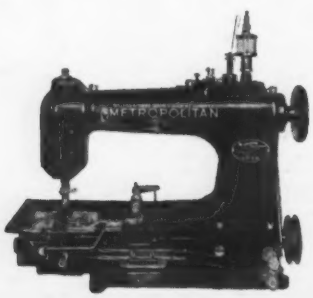
Through the long line of "W.&G." Sewing Machines, from the very first one produced almost 90 years ago, to those of today, the march of progress has been distinguished by outstanding improvements in the sewing machine art.

Every machine we build must pass the most exacting standards set by our engineers many years ago, and emphasized more than ever today.

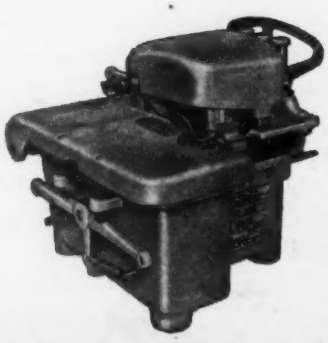
Thus, manufacturers using "W.&G." precision-built machines can depend on them for quality and quantity production.



LOCKSTITCH—TYPE 10-A
Automatic Lubrication. For all plain stitching operations.



STYLE 992-5
Semi-Automatic Lubrication. For simultaneous hemming and elastic inserting.



"SUPERLOCK" TYPE 803
Automatic Lubrication. For overseaming, overedging, hemming and serging.

WILLCOX & GIBBS SEWING MACHINE CO.
214 West 39th Street, New York 18, N. Y.

TEXTILE WORLD'S

Guide to Exhibitors

AT THE KNITTING ARTS EXHIBITION

ATLANTIC CITY AUDITORIUM • ATLANTIC CITY, N. J.
APRIL 29 through MAY 2, 1947

Guide to Exhibitors

AT THE KNITTING ARTS EXHIBITION

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Names and locations of exhibits at the 38th Knitting Arts Exhibition, Atlantic City Auditorium, April 29 to May 2, are given on this and following pages.

Abbott Machine Co., Wilton, N. H. Booth 133. Winding machinery. Rep.: L. S. Ligon, S. A. Roane, R. E. Hopkins.

Aberfoyle Mfg. Co., Philadelphia. Booths 295-296, 309-310, 320-321. Fabrics made from Durene yarns. Rep.: Walter C. Brown, W. T. Cheatham, Wm. Crenshaw, Fred Etherington, E. F. Golden, David Gott, J. A. Holt, Gordon Kenna, J. S. Kenrick, F. G. Miller, J. J. Neil, R. W. Yeabsley, Donald Fisher.

Adelphia Textile Co., Philadelphia. Booths 401-402. Yarns. Rep.: James T. Hunter, Clarence Evans, Edward B. Steinmetz.

Ainslie Knitting Machine Co., Inc., Brooklyn, N. Y. Booth 49. Brushing machine and auto-knitter for hosiery. Rep.: Sampson Broadwin, Leopold Broadwin.

Air-Perme-Ator Mfg. Co., Paterson, N. J. Booth 84. Unit demonstrating humidification by molecular suspension of water. Rep.: John Kohut, Edward Kohut, R. G. Burr.

Allentown Bobbin Works, Inc., Allentown, Pa. Booth 54. Bobbins and spools for the throwing of fine-denier yarns. Rep.: Henry W. Mack, Harold S. Barnes.

Aluminum Co. of America, New Kensington, Pa. Booths 136-138. Aluminum and magnesium products for textile industry, including tricot beams, castings, forgings, tubing, extrusions, sheet products, bobbins, spools, cloth rolls, shipping tubes, etc. Rep.: Charles Braglio, H. H. Nuerenberger, Geo. Bibens, D. M. Johnston, J. B. West, E. G. Kort, H. A. Faisst, A. C. Cooper, E. C. Foster, Kirk Usher, Dale Yonkers, F. P. Stanier.

Amalgamated Chemical Corp., Philadelphia. Booth 352. Reception. Rep.: Harold B. Dohner, Robt. A. Bruce, John M. Jester, Claude H. Crane.

American Bemberg Corp., New York. Booths 267-268, 277-278. Rayon yarns. Rep.: G. Spitzer, W. Tryller, J. Fortune, W. Six, E. Benzing, J. Ashley, J. Furr, V. Bez, L. Nave, W. Hutchinson, E. Gerst, L. Huston, R. Codish.

American Enka Corp., New York. Booths 367-368, 391-392. Rayon yarns. Rep.: M. B. Carr, R. R. Faison, C. R. Hall, E. W. Martin, R. J. Mebane, J. C. Scott, T. R. Thayer, J. A. Van Laer.

American Knitting Machine Co., Brooklyn, N. Y. Booth 141. Slitting machine. Rep.: George Zielinski, Michael Zielinski, Charles Bennington.

American Safety Table Co., Inc., Reading, Pa. Booths 348-349, 374-375. Group- and individual-drive power tables, looping tables, seaming tables, and related equipment. Rep.: Julian C. Frankel, Max T. Voigt.

American Textile Machine Corp., Murfreesboro, Tenn. Booths 216, 253. Holdstitch circular-hosiery knitting machine. Rep.: Paul Kent, Clarence Minton, Thos. B. Walker, and others.

American Thread Co., New York. Booths 71-74. Mercerized yarns and finished garments made from Hampton Durene; threads. Rep.: Harry Horrocks, Curtis E. Brown, Averill Rogers, James Conway, Wm. McCullouch, Richard Bliss, R. Rehbaum, Charles Causey, Frank Chamberlain, Walter Forbes, J. W. Kennedy, H. E. Copeland, A. A. Neller, E. H. Pretty, H. E. Roller, J. Stevenson.

American Viscose Corp., New York. Booths 297-298, 307-308. Rayon yarns and fabrics, Aveco table-model tricot machine.

American Vitos Co., Inc., New York. Booth 41. Vitos hosiery-mending machinery.

American Wool & Cotton Reporter, Boston. Booths 61-62. Textile publishers.

American Yarn & Processing Co., Mount Holly, N. C. Booths 376-377, 382-383. Reception. Rep.: William H. Suttenfield, William S. Montgomery, E. W. Wood, H. W. Davenport, E. J

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The 38th Knitting Arts Exhibition will open at noon Tuesday, April 29, in the Auditorium, Atlantic City, N. J. It will continue through Friday, May 2, at 5:00 p. m. The National Association of Hosiery Manufacturers will hold its annual meeting at Hotel Claridge, Atlantic City, on the forenoon of April 28. The tenth annual Hosiery Industry Conference will open with luncheon at Hotel Claridge on April 28 and continue that afternoon and on the morning of April 29.

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TEXTILE WORLD will maintain headquarters in booths 67-70 at the Knitting Arts Exhibition. Cordial invitation is extended to visitors to make this booth their business headquarters while in Atlantic City. TEXTILE WORLD will be represented during the show by Edwin D. Fowle, Publisher; C. W. Bendigo, Editor-in-Chief; Wm. Buxman, Manager; and by Prentice M. Thomas, C. Mallard Bowden, A. W. Fisher, R. L. Chisholm, H. C. Harvey, and J. G. Sabella.

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Holbrook, Jack Davis, Edwin Hutchinson.

Joseph Amon, Inc., Rahway, N. J. Booth 52. Moistening equipment and hosiery-mill accessories. Rep.: Anton Amon.

Ankokas Dyeing & Processing Co., Mount Holly, N. J. Booth 87. Dyed samples of cotton and woolen yarns in various packages. Rep.: Charles Coles, N. P. Kavanaugh, R. A. Eldridge.

Arrow Needle Co., Manchester, N. H. Booth 358. Samples of knitting-machine latch needles. Rep.: Jack Forstadt, Donald A. McDonnell, Geo. L. Heaton, Jr.

Atlantic Rayon Corp., Providence, R. I. Booths 48-50. Colored synthetic yarns dyed in skein and package form. Combined exhibit with Synthetic Yarns, Inc., which also see. Rep.: Ralph Lyons, Horace Greene, W. Roy Westland, Earle D. Taber, Warren A. Seem.

Bausch & Lomb Optical Co., Rochester, N. Y. Booth 323. Ortho-Rater, an optical instrument for measuring employee visual characteristics. Rep.: C. P. Brownell, W. A. Carter.

S. Blickman, Inc., Weehawken, N. J. Booth 89. Stainless-steel dye box, dyehouse accessories, stainless-steel wet-goods truck. Rep.: Bernard Blickman, George H. Langhirt, Edgar Olsen.

Boger & Crawford, Philadelphia. Booth 284. Mercerized yarns. Rep.: Mrs. Fredericka Boger, Ernest T. Boger, Alfred H. F. Boger, Robt. C. Boger, John Nevins, Thomas F. Haigh, W. C. Henderson, Harry J. Riebe, Hugh B. Chapman, James D. Whitaker, John Carasco.

Breuer Electric Mfg. Co., Chicago. Booth 60. Dust collectors, portable industrial vacuum cleaners, portable blowers. Rep.: L. C. Miles, D. R. Falck.

H. Brinton Co., Philadelphia. Booths 369-371, 388-390. Automatic striping machine, 24-in., 32-feed, 18-cut; plain jersey machine, 14-in., 32-feed, 22-cut; rib-body machine, 16-in., 16-feed, 702x702 needles; 5-in. rack-welt ribber with Fidelity knotter. Rep.: Harry S. Horrocks, David Brinton, Robert T. Smith, Joe Olachea, George McDowell, Seth Bittle, Eric Cordin, Harry Strasberg.

H. W. Butterworth & Sons Co., Philadelphia. Booths 155, 166, 193. Rep.: J. E. Butterworth, F. N. Spoerl, De Haven Butterworth, J. Hillman Zahn, Wallace Taylor.

Cannon Mills, New York. Booths 378-379. Reception. Rep.: H. E. Aken, C. V. Albright, J. C. Bartlett, Henry Crumbliss, P. H. Dalglish, M. B. Foil, E. H. Kelly, R. W. Lampman, J. C. Williams.

Carolina Aniline & Extract Co., Char-

lotte, N. C. Booth 59. FF Cleanser for cleaning nylon size off knitting machines, Humiclean for prevention of slime and algae in air-conditioning systems. Rep.: G. S. McCarty, Robert O. Simpson, E. B. Simpson, E. H. Steere, Jr.

Celanese Corp. of America, New York. Booths 263-264, 281-282. Reception. Rep.: Harry Price, Wm. O'Donovan, Martin P. Glynn, T. C. Race, Warren E. Best, Walter Mansfield, Edward Guild, John P. Holmes, Harold Schaefer, John C. Cook.

China Grove Cotton Mills Co., China Grove, N. C. Booths 183-184. Reception. Rep.: C. J. Beauer, Karl M. Nelson, John H. Rutledge, Jr., B. F. Corvin.

Coleman & Co., New York Booth 132. Reception. Rep.: Albert Witz, A. S. Mannes.

Comer-Avondale Mills Inc., New York. Booth 75. Cotton yarns and blended yarns, both natural and dyed. Rep.: S. B. Terry, J. F. Sharp.

Charles Cooper Co., Inc., Bennington, Vt. Booth 353. Springbeard needles, latch needles, fabric produced on Cooper's spring-needle circular rib-knitting machine. Rep.: John J. Hayes, Raymond Rogers.

Cotton Yarns Co., New York. Booths 380-381. Natural, dyed, and mercerized knitting and weaving yarns. Rep.: George O'Neil, M. Langley, W. R. Huber, G. A. Cooper, R. J. Gurney, H. A. James, N. Zank.

Crawford Mfg. Co., Inc., New Brunswick, N. J. Booth 217. Crawford electric stop motion, Crawford electric needle saver, and accessories. Rep.: Alfred Crawford, Harold J. Learned, Francis X. Doerr, Jr., Michael Antonevich.

Cross Cotton Mills Co., Marion, N. C., Booths 338-339. Garments knit from double-carded, bleached-base pastel tints. Rep. Eugene Cross, Jr., S. R. Cross, I. I. Davis, L. E. Williams.

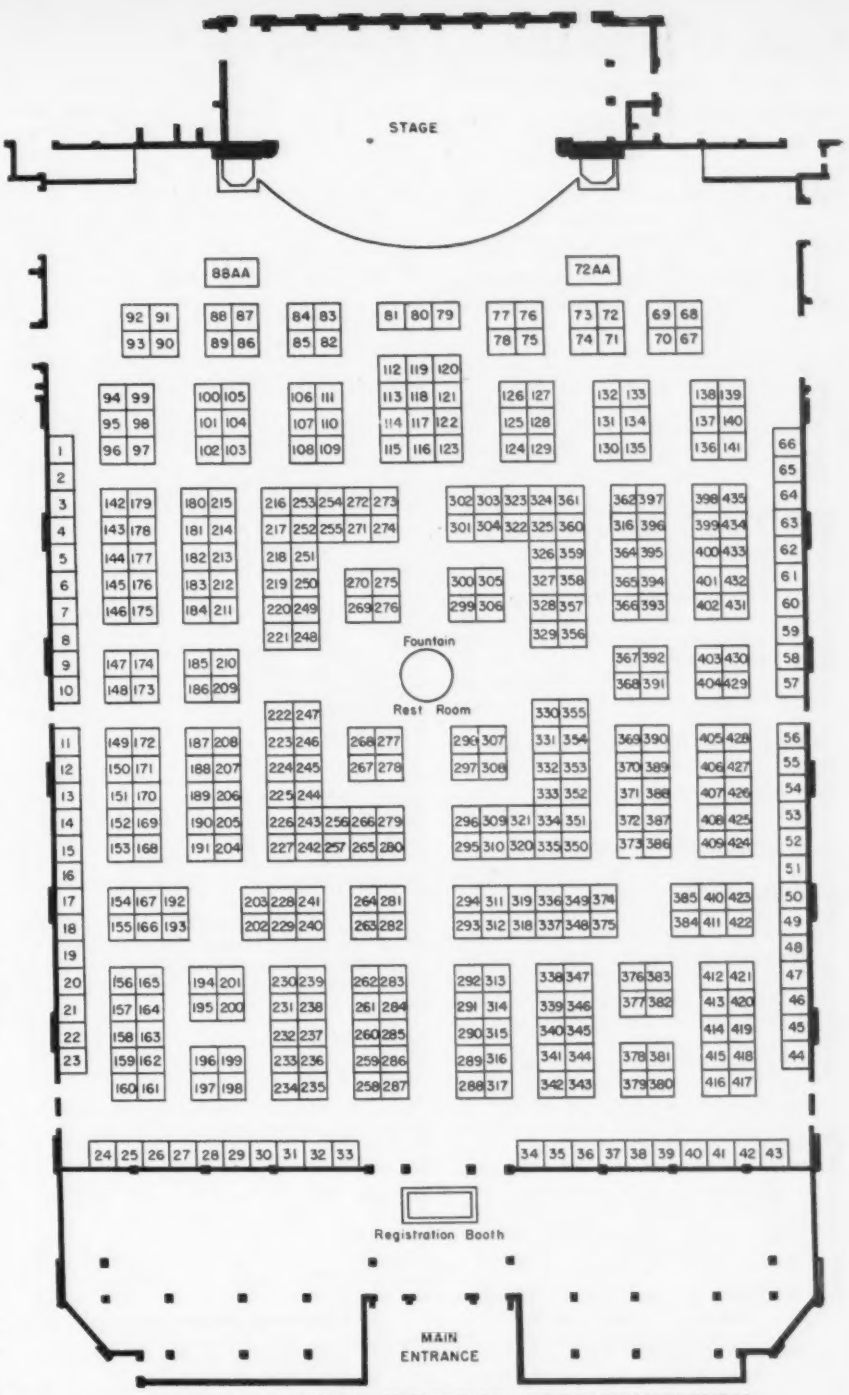
Cutting Room Appliances Corp., New York. Booths 142-143. CRA Electromatic knit-goods laying machine.

Davison Publishing Co., Ridgewood, N. J. Booths 11-12. Textile publishers.

Dixie Mercerizing Co., Chattanooga, Tenn. Booths 258-259, 286-287. Reception. Rep.: George R. West, Jr., J. Burton Frierson, Jr., Arthur K. Johnson, B. P. Barnes, D. O. Blevins, C. N. Ackroyd, Alexander Cameron, J. Blackwood Cameron, George Dalglish, Fred W. Frank, P. D. Morrow, George M. Porges, H. M. Peters, E. R. Kimball, T. J. Tighe.

E. F. Drew & Co., Inc., Boonton, N .J. Booth 18. Synthesized esters, fiber lubricants, and yarn conditioners. Rep.: Dr. D. S. Chamberlin, W. A. Cummings, H. A. Carman, L. W. Davis, K. W. Hartmann, Dr. E. I. Valko.

Dubied Machinery Co., New York. Booths 372-373. Type CAL automatic double-lock links and jacquard machine, type BARB automatic double-lock jacquard and transfer machine. Rep.: John G. Sandri, Ernest E. Hafner.



FLOOR PLAN FOR KNITTING ARTS EXHIBITION

Duffy Silk Co., Buffalo, N. Y. Booths 407-409. Reception. Rep.: Charles G. Duffy, Paul Hemmerich, C. Walter Seidel, Carl A. Lorez, Jr., Fred Overkamp.

Duplan Corp., New York. Booths 219-221. Thrown yarns. Rep.: F. J. Collins, J. L. Gross, R. H. Griffith, N. P. Murphy, L. C. Pierce, D. L. Ryan, G. Friedlander, G. A. Fenton, W. S. Wheeler, Jr., J. M. Huling.

E. I. du Pont de Nemours & Co., Inc. Wilmington, Del. Booths 384-385, 410-411, 422-423.

John A. Eberly, Reading, Pa. Booths 175-176. Needles, sinkers, points, knitting-mill accessories. Rep.: V. L. Eshelman, G. MacFayden, A. L. Eshelman.

Edmos Products Corp., Brooklyn, N. Y. Booths 147-148, 173-174. Rib-body knitting machine. Rep.: Milton Moskowitz, Lester W. Gott, Irving Berman, Lawrence Reed.

Essex Specialty Co., Inc., Hackettstown, N. J. Booths 168-169. Hosiery forms, finishing table, accessories. Rep.: M. M. Adler, Paul Guggenheim, Roger Lynch.

Ewing Thomas Corp., Chester, Pa., Booths 36-37.

Fairchild Publications, New York. Textile publishers.

W. F. Fancourt & Co., Philadelphia. Booths 341-342. Line of finishing materials for hosiery and piece goods, fea-

Guide to Exhibitors

AT THE KNITTING ARTS EXHIBITION

(Continued)

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turing a new resin finish for hosiery; hosiery dyeing and scouring compounds for nylon; samples of hosiery finished with these materials. Rep.: Walter F. Fancourt, Jr., Walter F. Fancourt, 3rd, John L. Fancourt, Howard A. Virkler, Claude G. Wolff.

Ernest A. Feustel, Inc., East Rutherford, N. J. Booth 50. Full-fashioned hosiery machines and Presto carriers, carrier tubes, aprons. Rep.: Ernest A. Feustel, K. P. Spindler, F. Scarborough, H. Fricke, E. Kalbach, R. Feustel.

Fabric Finishing Co., Lodi, N. J. Booth 96. Dyed and finished knitted fabrics. Rep.: Larry Wess.

Fidelity Machine Co., Inc., Philadelphia. Booths 244-245. Fidelity 400-needle electronically controlled women's hosiery machine. Rep.: H. W. Anderson, R. C. Aycock, Joe Bennett, George Petrie.

J. A. Firsching & Son., Utica, N. Y. Booths 346-347. New bias cutting machine, hand laying-up machine. Rep.: J. A. Firsching, Sr., R. A. Firsching.

Foster Machine Co., Westfield, Mass. Booths 334-335, 350-351. Model 102 open-wind machine, Model 75 precise-wind machine with equipment for coning nylon and rayon, and Model 76 nylon-sizing machine, all in operation. Rep.: E. C. Connor, H. E. Swift, E. P. Dodge, E. H. Ely, H. A. Cadle, H. W. Ball, F. S. Stange.

Franklin Process Co., Providence, R. I. Booths 412-413. Dyed knitting yarns and knitted fabrics. Exhibit combined with Southern Franklin Process Co. and Central Franklin Process Co. Rep.: W. A. Traver, C. W. Dawson, A. R. Fletcher, W. Gardner, W. F. Wolfe, C. E. McElwee, J. S. Miller, C. Blomgren, B. S. Phetteplace, James Garner, C. R. Ewing, E. W. Windle.

Freeland Spool & Bobbin Corp., Hazleton, Pa. Booth 4. Line of bobbins. Rep.: George B. Markle, Jr., William H. Miller, Travis Coxe.

General Hosiery Motor Mend Corp., New York. Booth 19. Vanitas electric hosiery-repair machines. Rep.: Chas. E. Mandelick.

Globe Dye Works Co., Philadelphia. Booths 57-58. Reception. Rep.: H. T. Greenwood, Paul Greenwood, Thomas S. Greenwood, George T. Moore, William A. Hilbert, W. J. Henne, Willard E. Haines, Fred V. Traut, Wm. Goodis.

Grand Rapids Textile Machinery Co., Grand Rapids, Mich. Booths 145-146. Reception. Rep.: W. H. Shields, W. F. Moon, M. F. Shields.

Grove Nylon Co., Scranton, Pa. Booths 9-10. Reception. Rep.: W. L. Schautz, A. G. Schautz, William T. Cheatham, William C. Napier, Jr., Robert W. Yeabsley, Dr. R. F. Stuewer, John Kalinowski.

H. C. Harding, Inc., Philadelphia. Booth 3. Humdinger needle polisher and preserver, Stay Coat stainless needle oil, T.E.X. nylon softener and lubricant, Check #9 solvent and penetrant. Rep.: George J. Reihl, Horace C. Harding.

Hayes Industries, Inc., Jackson, Mich. Booth 86. Light-metal tricot spools, section beams, bobbins; miscellaneous die-cast magnesium parts. Rep.: A. E. Backus, Wm. H. Maxson.

Oscar Heineman Corp., Chicago. Booth 256. Reception. Rep.: D. G. Brewster, F. E. Morey, J. C. LaVey, Pen Wilson, David Gott, Thomas Assheton.

Hemphill Co., Pawtucket, R. I. Booths 124-129. Samples of a wide variety of fabrics knitted on Banner machines. Rep.: Alfred L. Hutton, Jr., J. D. Hobson, James McDowell, Ethel M. Brown, John W. Holbrook, Allan H. Denerley, Joseph P. Canavan, T. J. Tighe, Eugene St. Pierre, Joseph Wawzonek.

Louis Hirsch Textile Machines, Inc., New York. Booth 424-425. Cidega knitting loom, B&E synthetic detergent, plastic molding compounds, Speedlectric steam generator. Rep.: E. H. Hirsch, B. L. Hathorne, P. Abrams, S. Livingstone.

Hoffner Rayon Co., Philadelphia. Booths 213-215. Rayon yarns in various packages, special resists for hosiery. Rep.: Joseph P. Hoffner, Joseph C. Hoffner, John G. Hoffner, F. M. Shannonhouse, Jr., W. J. Henne.

Alfred Hofmann, Inc., West New York, N. J. Booths 330-331, 354-355. Reception. Rep.: C. A. Hepp, P. Schoenster, H. Wirth, G. Bernegger, J. Straussberger.

Hosiery & Underwear Review, New York. Booths 63-66. Textile publishers.

Philip V. Hugues, Philadelphia. Booths 21-22. Kent scrubbing and waxing machines, Kent electric moppers, Invincible vacuum cleaners. Rep.: Philip V. Hugues, Ed Clifford, Les M. Thomas, Philip T. Hugues, Joseph W. Hugues, Paul R. Young, Samuel C. Ruch, George W. Blanchard, Robert B. Bauchmoyer, Joseph A. Walker.

Indianapolis Chemical Co., Inc., Indianapolis, Ind. Booth 178. Nylon trough solution, nylon cleaning solution. Rep.: H. T. Smolenski, J. L. Thibodeau, M. E. Edington.

Industrial Dryer Corp., Stamford, Conn. Booths 55-56. Yarn conditioner and twist setter. Rep.: J. R. Tutt, H. B. Foulder, F. W. Caesar.

International Nickel Co., Inc., New York. Booths 7-8. Corrosion-resistant materials made into hosiery-dyeing machines, skein-dyeing machines, covered rolls, conditioning cabinets, moistening boxes, size-cooking kettles, tank linings, utensils, and other accessories. Rep.: C. J. Bianowicz.

International Salt Co., Inc., Scranton, Pa. Booths 149-150. Miniature Lixator of stainless steel with brine storage tank, in operation; standard-size Lixator with auxiliary equipment on display. Rep.: D. W. Hengerer, N. M. Agnew, A. J. Hulsebach.

Loyal T. Ives Co., Inc., New Brunswick, N. J. Booths 180-181. Springbeard needles, sinkers, jacks, and other knitting-machine parts. Rep.: Theodore Whitlock, Everett A. Quint, Raymond Bergen, Theodore Whitlock, Jr.

Jacquard Knitting Machine Co., Inc., Philadelphia. Booths 130-131, 134-135. Model LH 30-in. jacquard links and links machine, model TJ 28-in. jacquard transfer machine. Rep.: H. Albertman, Joseph Tittl.

Johnson Engineering & Mfg. Co., Wilkes-Barre, Pa. Booth 426. Stainless-steel self-stacking metal boards for bobbins, cones, shells, and tubes; bobbin and yarn transportation trucks; rayon skein- and cake-soaking machine. Rep.: George McGee.

Johnston Mills Co., Charlotte, N. C. Booths 326-327. Cotton carded, combed, dyed, mercerized, and Durene knitting yarns. Rep.: R. H. Johnston, D. R. Jonas, W. J. Yates, F. N. Belk, R. M. Bechtel, W. B. Phelps, Jr., J. W. Fergerson.

Jordan Mills, Inc., Columbus, Ga. Booth 345. Natural, colored, and blended yarns. Rep.: R. Curtis Jordan, Jr.

Kahn & Feldman, Inc., New York. Booth 165. Nylon, rayon, and silk yarns. Rep.: Nathan Lewis, Leon J. Weil, Gerald N. Frank. Joseph O'Donaghue, N. Kurtz.

Kali Mfg. Co., Philadelphia. Booth 51. Nylon wetting-out agents; hand cream for handlers of nylon; cleaner for needles of machines knitting nylon; nylon oils. Rep.: Wm. B. Griffin, John Gilroy, Frederick L. Muller, George M. Mackenzie, James A. Branegan, Jr., Eugene W. Wall, S. G. Davenport.

Samuel Kassow Co., Philadelphia. Booth 419. Nylon and silk thrown yarns. Rep.: Samuel Kassow, Jack Kassow.

Kaumagraph Co., Wilmington, Del. Booths 194-195, 200-201 Identification process for hosiery. Rep.: S. W. Porges, Frederick Marston, J. L. Reeves, Harold Keech, W. P. Raiford, W. B. Gardner, Trowbridge Marston, T. H. Miller, Vernon Martin, Jr., Victor Stanton, Bert Mason.

Kearney Mfg. Co., Inc., Kearney, N. J. Booths 92-93, 151. Device for moistening yarn packages as they are formed; psychrometers; chemicals. Rep.: George Westwater, H. Sonntag, J. J. Garrigan, John F. Dulkin.

Kidde Mfg. Co., Inc., Bloomfield, N. J. Booths 251-252. Tension and density control, tensometer, raschel-type warp-knitting machine. Rep.: C. L. Griffin, W. J. Behr, Jr., J. S. Gosnell, R. J. Reiner.

A. Kimball Co., New York. Booth 179. Hosiery tickets. Rep.: L. J. Waters, G. Cunningham, F. N. Brady, J. E. Woods, H. T. Odom, T. R. Spencer.

Knit Goods Weekly, New York. Booths 94-99. Textile publishers.

The Knitter, Charlotte, N. C. Booths 1-2. Textile publishers

Joseph Klumpp Co., Philadelphia. Booth 414. Reception. Rep.: Joseph J. Klumpp, Charles B. Rapp, Wallace T. Stewart, George Vonder Lindt, William E. Sweigert.

Laconia Needle Co., Laconia, N. H. Booth 172. Latch needles. Rep.: M. F. Praz, H. D. Sangorn, L. P. Worcester.

W. T. Lane & Bros., Inc., Poughkeepsie, N. Y. Booth 40. Canvas hosiery trucks and baskets. Rep.: R. T. Lane, J. M. Baker.

Laurel Soap Mfg. Co., Inc., Philadelphia. Booths 260, 285. Soaps, oils, finishes. Rep.: Clarence E. Bertolet, Elmer C. Bertolet, William H. Bertolet, Jr., E. W. Seasongood, T. C. Holst, A. Henry Gaede, A. O. Hayes, W. R. Sargent.

Leatex Chemical Co., Philadelphia. Booth 88AA. Reception. Rep.: Maurice M. Guertin, Harry Buckley, Charles L. Hammell, Herbert Higginbotham, William Brink, John F. Rieder, John McChesney.

Lee Dye Works, Inc., Philadelphia. Booths 167, 192. Finishing and processing of hosiery. Rep.: Louis Finkel, Herman Werner.

Leighton Machine Co., Manchester, N. H. Booth 400. Samples and literature. Rep.: Frank C. Golden, John C. Rice.

Percy A. Legge, Boston. Booths 364-366, 393-395. Covered elastic yarn, French and Bradford worsted yarns, woolen yarns, specialty-fiber blend yarns. Rep.: Clarence H. Vanderbeck, Henry C. Legge, Edward Legge, Arthur E. Snyder, Oliver McCurdy, Charles Neeld.

Lestershire Spool & Mfg. Co., Johnson City, N. Y. Booth 154. Special-purpose bobbins, aluminum bobbins, nylon-processing bobbins. Rep.: H. D. Clinton, W. S. Taylor, W. S. Taylor, Jr.

Liberty Throwing Co., Inc., New York. Booth 53. Packages of 10- and 15-den. nylon hosiery yarns. Rep.: George M. Poillon, Chas. M. Epstein, Jr.

Karl Lieberknecht, Inc., Reading, Pa. Booths 222-223, 246-247. Reception, Rep.: Albert Friedmann, C. A. Friedmann, George Groh, R. Thierfelder.

Wm. A. P. MacKnight, Philadelphia. Booth 340. Reception. Rep.: Wm. A. P. MacKnight, Burton H. Etherington, Jr., Fred Etherington, Henry W. Swift. John R. Crawford, Jr.

Markem Machine Co., Keene, N. H. Booths 299-300, 305-306. Machines for marking and printing boxes, labels, and fabrics. Rep.: C. A. Putnam, D. F. Putnam, O. B. Meyers, H. B. Lampman, W. Stanford, E. C. Quimby, Jr., C. H. Cheeseman, H. D. Milton, Gilmore Fretz, J. Powers, J. Vigneault, O. J. Locke.

Clarence L. Meyers & Co., Philadelphia. Booths 328-329, 356-357. Durene yarns and fabrics knit therefrom; blended mercerized-cotton and nylon yarn and hosiery made therefrom. Rep.: Clarence L. Meyers, Milton M. Meyers, Gustave C. Ballenberg, Charles E. Bender, Harry W. Schrader, Ernest Fowler, Russell Gant, Louis Eschelbach.

Milton Machine Works, Milton, Pa. Booth 90. Light-metal tricot beams and other products. Rep.: W. DeWitt Leinbach, J. Stanley Billig.

L. P. Muller & Co., Philadelphia, Booths 224-225. Cotton yarns. Rep.: H. D. Muller, H. G. Harper, J. L. Muller, J. M. Matlack, J. T. Hawthorne, H. R. Penington, E. O. Penington, W. J. Scott, F. H. Ward, T. C. Brown, J. J. Carey, J. T. Miller, F. M. Shipley.

Narrow Fabric Co., Reading, Pa., Booths 265-266, 279-280. Display of garments featuring elastic waistbands and legbands. Rep.: Sam R. Fry, A. LeRoy Lightner, John W. Sweeney, George Dudley, Fred S. Pierce, S. S. MacCallum, P. J. Kelly, H. N. Willi.

National Ring Traveler Co., Pawtucket, R. I. Booth 17. Spinning and twisting travelers. Rep.: Henry A. Carter.

National Spinning Co., Inc., New York. Booth 46. Cotton and worsted yarns. Rep.: Lloyd C. Kinsey, Ward R. Biggs, J. T. Miller, Jr., A. M. Goodman, L. C. Kinsey, Jr.

National Vulcanized Fibre Co., Wilmington, Del. Booth 182. Examples of textile applications of vulcanized fiber and phenolite laminated plastic. Rep.: T. B. Baldridge, J. G. Beasten, J. T. Gordon, R. E. Bryant, J. O. Otis, H. L. Maier, J. L. Johnston, F. I. Crow, H. C. Hackett.

North American Rayon Corp., New York. Booths 196-199. Rayon yarns. Rep.: R. Steere, D. Jenks, M. Phinney, H. Summerell, J. Lewy, J. Dunlop, D. Devine, A. Bshorr, E. Steidler, M. Heinzman, W. Ward, W. Hutchinson, E. Gerst.

Onyx Oil & Chemical Co., Jersey City, N. J. Booth 218. Knit-goods finishing agents, including a one-treatment resin finish for nylon and rayon hosiery. Rep.: Leon P. Brick, Albert R. Jenny, Alexander C. Mackey, Emil Peters, J. W. Huber, R. A. Watson, H. R. Haley, W. S. Trezise, S. A. Trezise, J. E. Trezise, E. W. Klumph, Cliff Myers, Thomas Wilheit, C. R. Smith, F. E. Schroeder.

Pan American Publishing Co., New York. Booths 13-14. Textile publishers.

Paramount Textile Machinery Co., Chicago. Booths 254-255, 271-274. Automatic electrically-controlled retort for processing hosiery, air-cooled table, hosiery-finishing forms. Rep.: William Pope, John C. Fenley. William Pike, W. H. Albertson, O. A. Siegel, W. P. Morehead, L. D. Ross.

Patent Button Co., Waterbury, Conn. Booth 177. Plastic sew-on buttons for knitted outerwear and underwear. Rep.: Franklin Read, F. M. Tibbetts, Thayer Baldwin.

Philadelphia Metal Drying Form Co., Philadelphia. Booths 82-83. Steam and electric hosiery-drying forms and tables, hosiery envelope fillers, tissue inserters. Rep.: J. Seligman, T. A. Temple.

E. W. Pike Co., Elizabeth, N. J. Booth 16. Illuminated magnifier for inspecting textile materials. Rep.: S. N. Pike, Arthur E. Klee.

Proctor & Schwartz, Inc., Philadelphia. Booths 157-164. Automatic hosiery-boarding machine, nylon-hosiery preboarding machine, both in operation. Rep.: Charles S. Tiers, William J. Merrigan, Justin Pearson.

Quaker City Felt Co., Philadelphia. Booth 39. Pressed and woven felts. Rep.: Richard W. Freeth.

Rayon Textile Monthly, New York. Booths 77-78. Textile publishers.

Robert Reiner, Inc., Weehawken, N. J. Booths 230-239. New 84-in. high-speed tricot machine, high-speed Kayloom, sectional warper, section of magazine creel. Rep.: Dr. Robert Reiner, Fritz Lambach, August Shoenenberg, Karl T. Marx, George Moebins.

Reliance Electric & Engineering Co., Cleveland, Ohio. Booths 427-428. A-c. and d-c. motors, electric variable-speed motor controls. Rep.: E. E. Helm, P. W. Arnold, W. R. Hough, K. S. Lord, N. R. Smith, W. K. Schotterbeck, J. E. Butler, M. M. Hepler, R. J. Overstreet, W. C. Madsen, J. E. Walker.

Rex Hosiery Finishers, Inc., Philadelphia. Booth 156. Hosiery finishing process. Rep.: Sidney Simon, M. Gilmore.

Reynolds Metals Co., Louisville, Ky. Booths 420–421. Aluminum textile-machine parts and accessories. Rep.: John Blomquist, R. J. Snyder, R. E. Scott, E. W. Schaw, H. Menking, G. L. Root, R. H. Ewing.

A. H. Rice Co., Pittsfield, Mass. Booth 402. Nylon seaming and looping threads.

Robaczynski Machine Corp. of America, Brooklyn, N. Y. Booths 415-418. Links and links machine, *V*-type flat-knitting machine, twin-head border-knitting machine, tubular-string knitting machine, raschel knitting machine. Rep.: L. Robaczynski, L. Robaczynski, Jr., I. Schmidt, E. Masin, H. L. Justman, J. Doloboff, J. Raymond.

Royersford Needle Works, Royersford, Pa. Booths 431–432. Springbeard needles, pointers, sinkers, full-fashioned accessories. Rep.: Fred O. Heller, R. W. Breidenbach.

Sauquoit Silk Co., Inc., Philadelphia. Booth 207–208. Reception. Rep.: C. Lee Havey, W. R. Rossmassler, Edwin L. Dale, E. C. West, F. N. Stanley, Murdock H. Smith, George M. Porges, J. J. Neil, Joe Callicott.

Scholler Bros. Inc., Philadelphia. Booths 202–203, 228–229, 240–241. Soaps, softeners, sulphonated oils, wetting agents, scouring compounds, and a new synthetic-resin-type finish for nylon hosiery. Rep.: F. C. Scholler, J. F. Noble, Wm. Jackson, Jr., E. S. Atkinson, L. M. Boyd, W. A. Daniels.

Schuster Manufacturing Co., Clinton, Md. Booth 82-83. Raschel machine. Rep.: W. F. Hall, John Schuster, Albert Forbes.

Scott Testers, Inc., Providence, R. I. Booth 322. Constant-rate-of-load drive for pendulum-type break testers, fabric clamp for break testers.

Guide to Exhibitors

AT THE KNITTING ARTS EXHIBITION

(Concluded)

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Scott & Williams, Inc., New York. Booths 79–81, 112–123. Seam-free nylon hosiery machine, broad-rib links and links machine, color-in-color machine, half-hose machine, infants' and children's full-length and half-hose machine, automatic rib-body machines, interlock machines.

Sees & Faber Co., Philadelphia. Booth 15. Knitters tools and specialties. Rep.: J. A. Dietrick, Charles Rudderow.

Sellers Mfg. Co., Saxapahaw, N. C. Booths 187–188. Carded, combed, mercerized knitting yarns. Rep.: B. E. Jordan, Frank Longcrier.

Sjostrom Electronic Counter Co. Div., AAA Mfg. Co., Waltham, Mass. Booth 21. Electronic pick counters. Rep.: George T. Brady, Robert L. Sjostrom, Joseph Welty, Robert E. Dallon.

Smith, Drum & Co., Philadelphia. Booths 24–33. Equipment for dyeing yarn and hosiery, in operation. Rep.: Harry S. Drum, William C. Dodson. Al March, Joe Ballentine, Perry Parrott.

Sonoco Products Co., Hartsville, S. C. Booths 343-344. Paper carriers.

Southern Mercerizing Co., Tryon, N. C. Booths 211–212. Mercerized yarns. Rep.: C. J. Beaver, W. C. Ward, R. B. White, W. Herbert Smith, B. F. Corvin.

Southern Textile Machinery Co., Paducah, Ky. Booths 362–363, 396–397. 38-point looper complete with chain clipper, work arm, and bracket for 400-needle work. Rep.: T. A. Paxton, R. N. Parkin.

Stampagraph Co., Inc., Bronx, N. Y. Booth 433. Hot-iron hosiery transfers in one and two colors, also underwear transfers. Rep.: George Chadwick.

Standard-Coosa-Thatcher Co., Chattanooga, Tenn. Booths 185–186, 209–210. Durene yarns and threads. Rep.: R. J. Mathewson, V. S. Verlenden, M. A. Henderson, C. F. Smith. Robert B. Lewis, F. R. Harris, E. S. Davis, W. S. Lawson, J. P. Rickman, J. O. Foil, Robert G. Miller, Wm. M. Hall, E. R. Dillmore.

Stop-Motion Devices Corp., Brooklyn, N. Y. Booths 359–361. Electric needle protectors, hole and press-off detectors for open-head machines, spring-needle detectors, press-off detectors for rib machines, running knot and slub detectors; stop motions for underwear, outerwear, and hosiery machines. Rep.: N. J. Tellerman, Alfred F. Malbuck, Walter Caesar, Gordon Connors.

Supreme Knitting Machine Co., Brooklyn, N. Y. Booths 189–191, 204–206. Group of high-speed, multiple-feed, circular, latch-needle, sinker-top knitting machines, including 20-in. 24-feed fancy-pile-fabric machine, 24-in. 32-feed automatic stripping machine, 26-in. 36-feed outerwear machine.

Synthane Corp., Oaks, Pa. Booths 170-171. Laminated-phenolic materials, examples of machining practices and fabricating facilities. Rep.: R. R. Titus, J. B. Rittenhouse, G. A. Ebelhare. Dr. N. A. Skow, R. L. Foote, Herbert Widdap, J. K. Johnson, C. B. Moss, E. E. Smith.

Synthetic Yarns, Inc., Lowell, Mass. Booths 248–250. Thrown yarns. Exhibit in conjunction with Atlantic Rayon Corp., which see. Rep.: C. R. Steedman, T. Leo Power, Warren A. Seem.

G. H. Tennant Co., Minneapolis, Minn. Booths 44–45. Dry-cleaning equipment for reconditioning and maintaining mill floors. Rep.: Orville C. Hognander, Walter Boyer, Robert F. Guthrie, A. S. Mabusth, H. Edward Lavett, John F. Thorsen, Hill Trube, A. H. Jackson.

Textile Age, New York. Booths 2-6 Textile publishers.

Textile Industries, Atlanta, Ga. Booths 42–43. Textile publishers.

Textile Machine Works, Reading, Pa. Booths 288–292, 313–317. Reception. Rep.: R. W. Weaver, E. A. Shoemaker, H. Printz, P. Kroener, N. E. Richards.

Textile Trimming & Boarding Machine Co., Inc. Reading Pa. Booths 403–404, 429–430. Assembly finishing table, automatic hosiery turning machine, rubber-top trimmer, loose-end-wrapped trimmer, fluorescent looper light, adjustable looper chair, looper table. Rep.: F. Y. Kitzmiller.

Textile World, New York. Booths 67–70. Textile publishers.

Tolhurst Centrifugals Div., American Machine & Metals, Inc., East Moline, Ill. Booth 97. Microflex timer, 40-in. center-slung extractor. Rep.: C. H. Wallace, R. M. Hammes, F. C. Weicker, J. R. Angel, T. M. Broughton, V. L. Sanderson, J. W. Bird.

Tompkins Bros. Co., Inc., Syracuse, N. Y. Booths 405–406. Multiple-feed latch-needle machine, single-head spring-needle machine. Rep.: W. A. Ingalls, E. E. Cragg, Samuel Kuney, Harold Fairchild.

Torrington Co., Torrington, Conn. Booths 301–304. Latch needles, sewing-machine needles, full-fashioned machine needles, sinkers, and related parts. Rep.: L. J. Ross, W. C. Thompson, W. W. Blelock, J. H. Lingley, Charles T. Spalding, W. C. Wilchardt, H. D. Blake, Jr., Clarence Rowe, F. G. Stubbs.

Tray Ware, Inc., Cleveland. Booth 76. Plastic dryers for half hose and anklets. Rep.: Alex Kerby, Harry B. Greene.

E. W. Twitchell, Inc., Philadelphia. Booth 48. Packaging materials for textile products. Rep.; W. F. Baker, Jr.

Union Special Machine Co., Chicago. Booths 293–294, 311–312, 318–319, 336–337. Reception. Rep.: T. S. Whitsel, W. G. Booth, A. J. Feigel, B. W. Merz, Wm. Pfeiffer.

United Elastic Corp., Easthampton, Mass. Booths 34–35. Elastic yarns, webbing, and braid. Rep.: F. L. Dorr, W. E. Dalby, E. R. Boehm, G. S. Van Voorhis, R. A. Waite, J. E. Thompson, H. O. Hollingworth.

United States Rubber Co., New York. Booths 269–270, 275–276. Lastex and Latan yarns. Rep.: Paul Linke, Patrick F. Kiernan, John R. Malpass.

United States Testing Co., Hoboken, N. J. Booths 386–387. Hosiery-fitting measure forms, leg and foot measuring device. run-resistance meter. Rep.: S. B. Walker, H. M. Block, A. J. Kellner, S. C. Mayne, Jr.

Universal Winding Co., Providence, R. I. Booths 100-105. Roto-Coner, No. 250 nylon-sizing machine, No. 50 cone winder. Rep.: Robert Leeson, E. O. Smith, W. S. Warren, T. L. Cotter, E. S. Broadbent, R. M. Mauldin, W. J. Quinn, J. W. Stribling, I. E. Wynne.

George A. Urlaub & Son, Queens Village, N. Y. Booth 20. Reception. Geo. A. Urlaub, Geo. S. Urlaub.

Utica Novelty & Mill Supply Co., Utica, N. Y. Booth 47.

Veeder-Root, Inc., Hartford, Conn. Booth 324. Revolution, ratchet, and measuring counters. Rep.: A. G. Kallinich, G. L. Logan, C. S. Palmer.

Valdese Mfg. Co., Valdese, N. C. Booth 85. Natural, bleached, and dyed carded-cotton knitting yarns. Rep.: E. M. Spencer, L. P. Guigou, Henry Boshamer, W. H. Smith, Tom Moore.

Venango Engineering Co., Philadelphia. Booths 226–227, 242–243. Textile dyeing equipment. Rep.: C. Harry McCandless.

Walton Laboratories, Inc., Irvington, N. J. Booths 152–153. Humidifying equipment. Rep.: Wm. Felderman, B. Dickinson, J. A. Babcock.

Warwick Chemical Co., Inc., West Warwick, R. I. Booth 38. Line of chemicals for knitting industry and samples of fabrics to which they have been applied. Rep.: Mrs. T. Noyes, M. M. McCann, D. E. York, H. G. Kennedy.

Whitin Machine Works, Whitinsville, Mass. Booth 106–111. High-speed warp-knitting machine. Rep.: Harry Moss, Charles Sorton, George F. McRoberts.

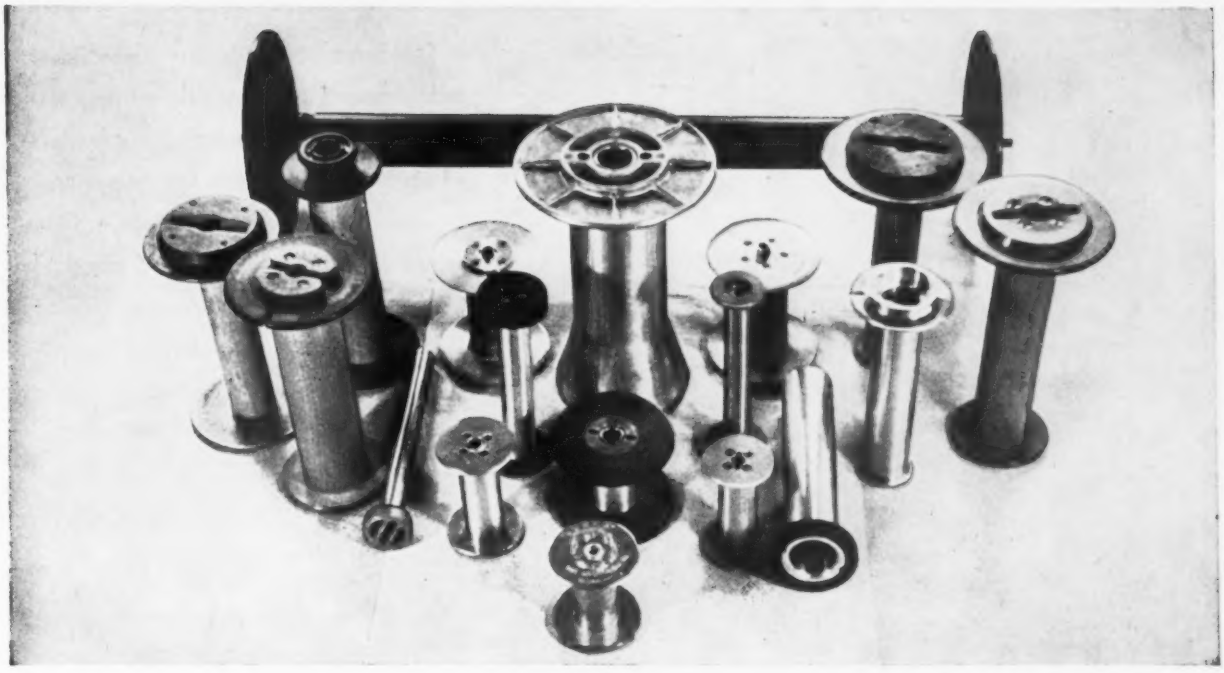
Wildman Mfg. Co., Norristown, Pa. Booths 398–399, 434–435. Reception. Rep.: K. Howie, F. E. Paul, J. J. Brennan.

William Whitman Co., Inc., Philadelphia. Booths 332–333. Knitting yarns. Rep.: Martin H. Horchler, Ernest Hay, Kenneth N. Merrill, Vernon Sweck, Andrew W. Macy, J. Christison. Clifford H. Ashley, John J. Stickley, Ernest Jones, Ernest Jones, Jr., Robert Napier, E. W. Robinson. C. A. Strodl, David F. Swain, Frank Eberhart, H. C. Leswing.

Thos. Wolstenholme Co., Philadelphia. Booth 257. Reception. Rep.: L. F. Schaeffer, L. F. Shaeffer, Jr., Frederick S. Krecker.

Wyandotte Chemicals Corp., Wyandotte, Mich. Booth 144. Textile chemicals. Rep.: George le Sueur, Johne Parsley, Wm. Endriss, Harry Moyer, C. B. Robinson.

SPECIAL PURPOSE BOBBINS



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You get highest efficiency in yarn processing when you use Lestershire's special purpose bobbins . . . a fact proved through widespread use in the textile industry.

Lestershire bobbins are engineered to meet every requirement of the yarn process, down to continuous (Pat'd. Magazine feature) overend delivery. They are backed by experience, manufacturing facilities and technical engineering knowledge.

Illustrated are bobbins with wood bodies and fibre heads, for one purpose . . . with bakelite head and aluminum bodies for another purpose . . . all aluminum and all magnesium for still other uses.

As you know, the perfection of any bobbin depends on bringing the proper materials together with the correct construction into the finished product; this places our bobbins high on the preferred list of textile equipment.

Write today and let us discuss with you your requirements for "any purpose bobbins".

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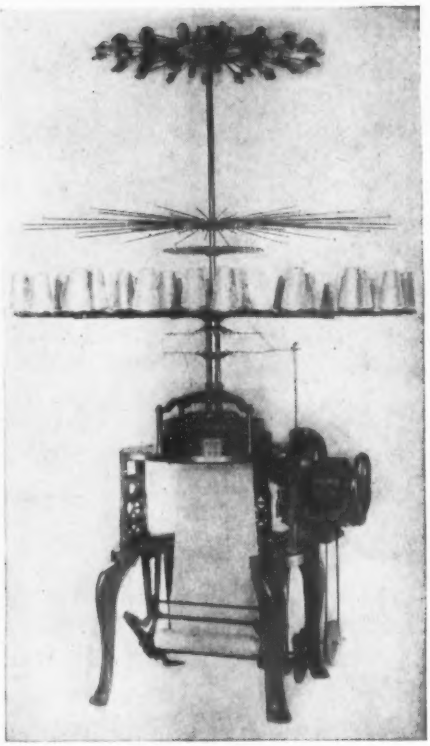
GREENVILLE TEXTILE SUPPLY CO., Greenville, S. C.

LESTERSHIRE SPOOL & MFG. CO.

JOHNSON CITY, NEW YORK

Trouble-Free Knitting-High Production *by* TOMPKINS



The Tompkins Model B-15 is a multiple feed latch needle machine engineered to produce maximum volume of work at minimum cost. Completely factory equipped, it requires only a few hours to install and place in operation. Simple design minimizes maintenance and attention—makes it easy to operate. Electric stop motion eliminates imperfections and waste — stationary take-up permits close inspection of cloth at all times. Available in cylinder sizes 9" to 24" and in gages up to 42.

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Established

1846

Over a century of continuous service to the knitting industry throughout the world.

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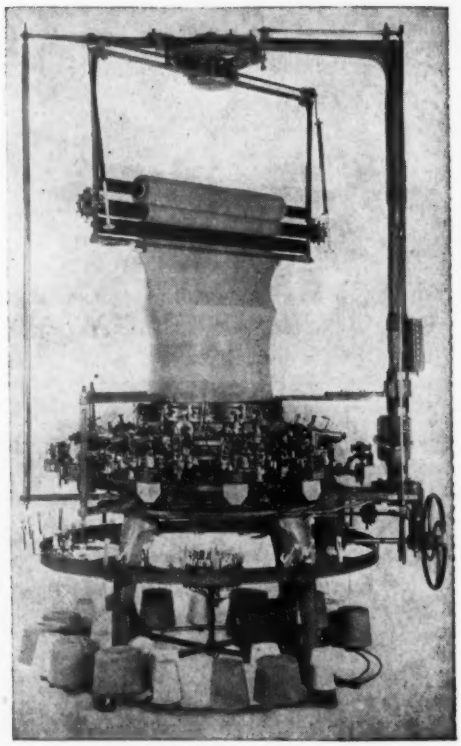
The Tompkins Model S-1 is the finest in high speed spring needle knitting machines. Set up at factory for any class of work desired. Feeds and gages may be quickly changed to produce a wide range of cloth — from rugged overcoat material to fine underwear fabrics. Furnishing wheels, visual-signal electric stop motion and cylinder lighting insure perfect cloth in large volume. Interchangeable cylinders — 16" to 35" and gages from 5 to 50 provide maximum flexibility.



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We'd never dream...

of being Unconventional...

and so the entire family of AMERICAN THREAD products join strands in extending to you their cordial invitation to meet them at the Knitting Arts Exhibition in Atlantic City, April 29 through May 2.

As you thread your way through the displays, drop in for a visit at the AMERICAN THREAD BOOTH 71, 72, 73, 74.

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INDUSTRIAL THREAD AND YARN DIVISIONS

JUST TURN A VALVE to "PASS the SALT" ANYWHERE IN YOUR PLANT

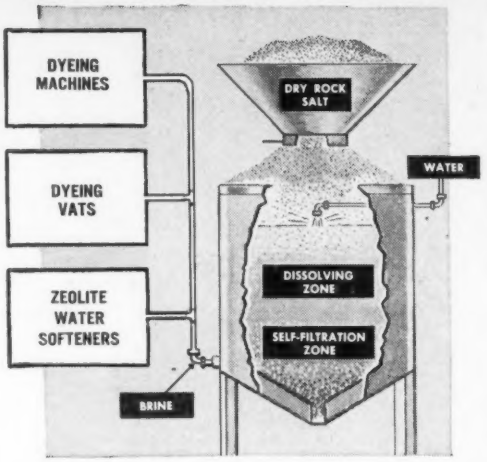
Put an end to SALT HANDLING with The LIXATE PROCESS for making brine

Weigh these production savings:

- **Eliminates shoveling salt from storage**
- **Ends hauling salt around the plant**
- **Saves time wasted in making brine**
- **Stops waste of salt by spilling**
- **Assures accurate salt measurement**

ECONOMICAL LIXATE BRINE made from Sterling Rock Salt has brought users savings as high as 20%. Completely automatic, the Lixator can be placed right at salt delivery or storage point. It supplies 100% saturated, free-flowing, crystal-clear brine by common steel piping to as many points in your plant as you wish . . . over any distance . . . by gravity flow or conventional pump and piping equipment. You simply turn a valve for pure, self-filtered brine that meets the most exacting chemical and bacterial standards for every salt need. It will pay you to investigate the Lixate Process for your plant.

HOW THE LIXATOR WORKS



In the upper zone—Flowing through a bed of rock salt which is continuously replenished by gravity feed, water dissolves salt to form 100% saturated brine. **In the lower zone**—Through use of the self-filtration principle *originated by International*, the saturated brine is thoroughly filtered through a bed of undissolved rock salt. The rock salt itself filters the brine. Nothing else is needed.

WHAT THE LIXATOR PROVIDES

- ✔ **Chemical and bacterial purity to meet the most exacting standards for brine**
- ✔ **Unvarying salt content of 2.65 pounds per gallon of brine**
- ✔ **Crystal-clear brine**
- ✔ **Continuous supply of brine**
- ✔ **Automatic salt and water feed to Lixator**
- ✔ **Inexpensive, rapid distribution of brine to points of use by pump and piping**

Completely flexible, a Lixate installation can be made to supply any needed brine requirement. No costly investment is required. The Lixator pays for itself out of savings. See how others have saved—write now for your copy of "The Lixate Process for Making Brine."

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The LIXATE *Process*
Reg. U. S. Pat. Off.
for making brine
INTERNATIONAL SALT COMPANY, INC.
Scranton, Pa.

WATCH FOR THIS OPENING!

Atlantic City Premiere of the NEW Whitin Model "C" High-Speed Warp Knitting Machine . . Knitting Arts Exhibition—April 29-May 2.

It's here! It's new! It's production proved! The Whitin Model "C" high-speed warp knitting machine will have its initial showing at the Knitting Arts Exhibition, to be held in the Atlantic City Auditorium, April 29th through May 2nd. Developed after long and critical study of existing tricot machinery, this standard 168" production model is built to the consistently high manufacturing standards of all Whitin equipment.

Incorporated in its construction are many unusual and exclusive features that have been time-tested and approved, over a period of months, in regular mill production. Intensive research has enabled us to build an improved tricot machine with many hitherto unobtainable features long in demand, and a rugged simplicity of action that spells P-R-O-F-I-T in actual mill operation.

STOP at the Whitin display! LOOK at the Whitin Model "C" and its important new features! LISTEN to it in operation. You'll agree that the answer to tomorrow's knitting problems is here TODAY . . . the Whitin Model "C" Warp Knitting Machine.

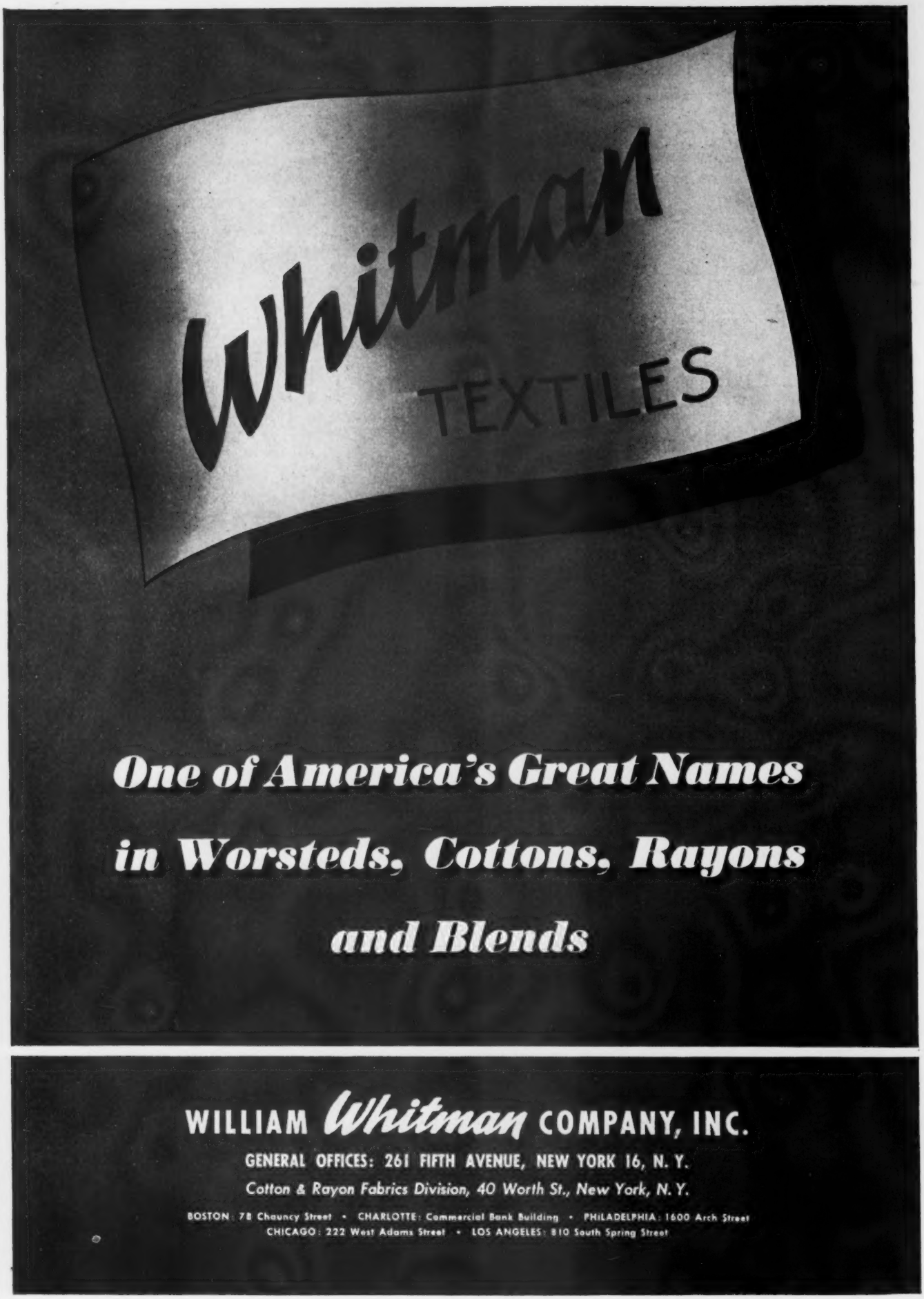
Remember the date! April 29th through May 2nd. Remember the location! Booths 106-111, (inclusive) . . . right under the red WHITIN sign.

WHITIN

MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA.


Whitman
TEXTILES
One of America's Great Names
in Worsteds, Cottons, Rayons
and Blends
WILLIAM Whitman COMPANY, INC.
GENERAL OFFICES: 261 FIFTH AVENUE, NEW YORK 16, N. Y.
Cotton & Rayon Fabrics Division, 40 Worth St., New York, N. Y.
BOSTON: 78 Chauncy Street • CHARLOTTE: Commercial Bank Building • PHILADELPHIA: 1600 Arch Street
CHICAGO: 222 West Adams Street • LOS ANGELES: 810 South Spring Street

Rayon Reports

"Avisco" is Now the Trade Mark for Products of American Viscose Corporation

Avisco, the new trade mark for products of American Viscose Corporation, is now in effect.

Avisco, a contraction of American Viscose Corporation, is a logical choice. Easy to use, simple to remember, it clearly identifies rayon products with the firm that produces them. What is more, it concentrates promotion on just one trade mark.

With the adoption of this trade mark, we reaffirm the policy of service and friendly cooperation for which you have known us in the past. Through our product and quality research we will continue to aid in developing better fabrics of Avisco rayon for America's consumers.

Proper Selection of Rayon Staple for Woolen and Worsted Blends, Key to Successful Fabrics

Pointing up the basic ability of rayon staple to make fine woolen and worsted blends, a new booklet published by American Viscose makes it clear that, to assure successful end products, the appropriate rayon staple and wool fibers must be chosen. Hit-or-miss blending or indiscriminate use of waste or garnets can rarely be depended on to give satisfactory results.

Under the title, "How Rayon Staple Serves the Woolen and Worsted Industries," the booklet gives brief but thorough coverage to rayon's controllable characteristics, from which utility in blends is derived. And it emphasizes the fact that by choosing rayon staple of the right length, diameter, luster, color, strength, and crimp, fabrics of desired design, weight, warmth, construction, feel and finish are easily and successfully achieved.

Copies of the booklet will gladly be sent on request. Simply write to American Viscose Corporation, 350 Fifth Avenue, New York 1, N. Y.

RAYON 20 YEARS AGO

RAYON

Makers of a popular soap have started a rayon-washability test service to benefit makers and retailers of the fabrics . . . and the soap!

Three-fourths of the displays at the recent Knitting Arts Exhibit in Philadelphia represented lines in which rayon yarns are used.

World production of rayon for 1926 is unofficially estimated at well past the 200 million mark.

MAKE USE OF *Avisco* 4-PLY SERVICE

To encourage continued improvement in rayon fabrics, American Viscose Corporation conducts research and offers technical service in these fields:

1 FIBER RESEARCH
2 FABRIC DESIGN
3 FABRIC PRODUCTION
4 FABRIC FINISHING

AMERICAN VISCOSE CORPORATION

America's largest producer of rayon

Offices: 350 Fifth Avenue, New York 1, N.Y.; Charlotte, N. C.; Cleveland, Ohio; Philadelphia, Pa.; Providence, R. I.; Washington, D. C.; Wilmington, Del.

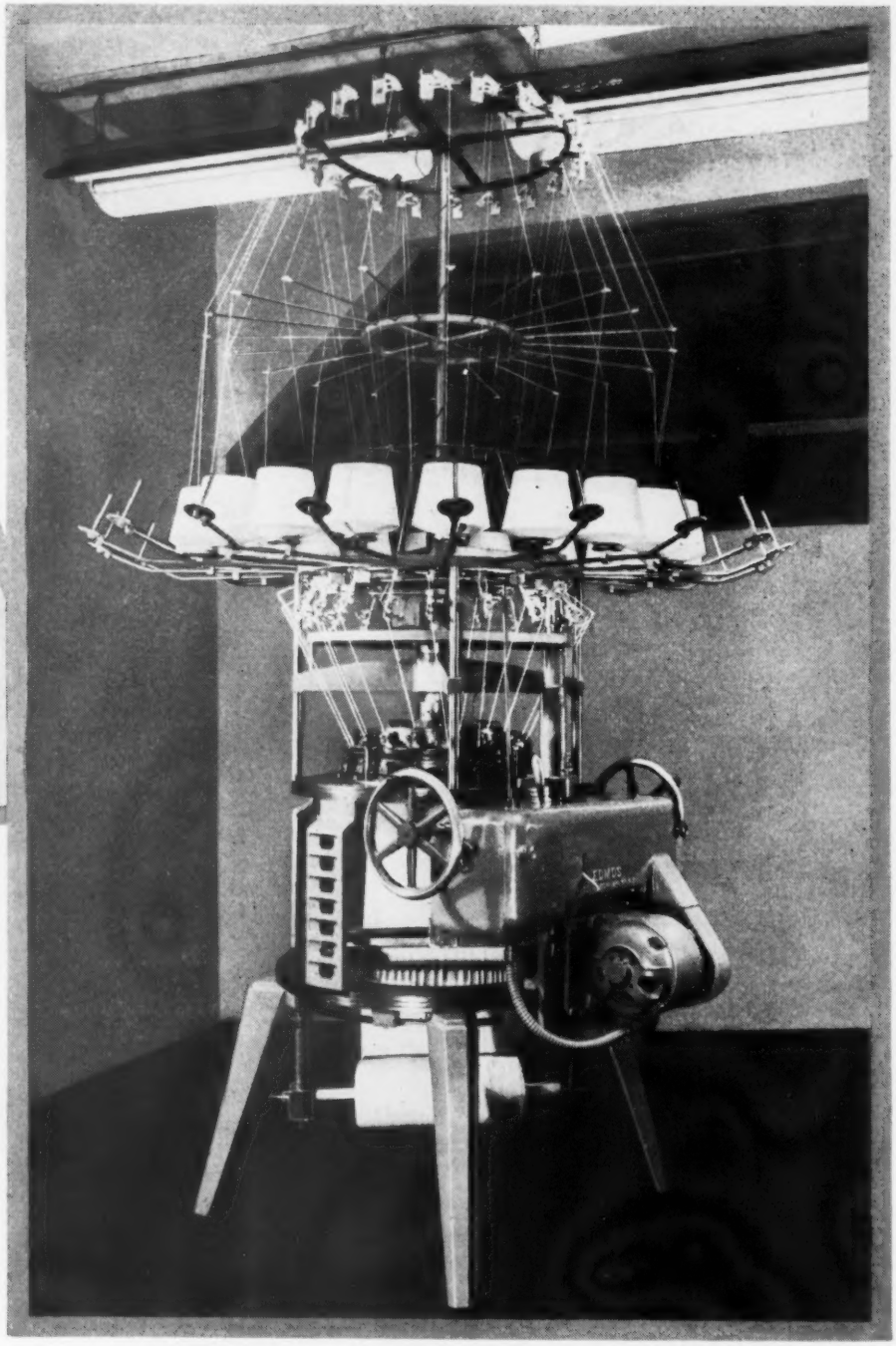
Showing TYPE AM

AT THE
KNITTING
ARTS
EXHIBITION
BOOTHS
147-148
173-174

...and at

OUR PLANT

Everybody Welcome



ILLUSTRATED:

20" machine — 20 feed
14 cut

The World's Greatest

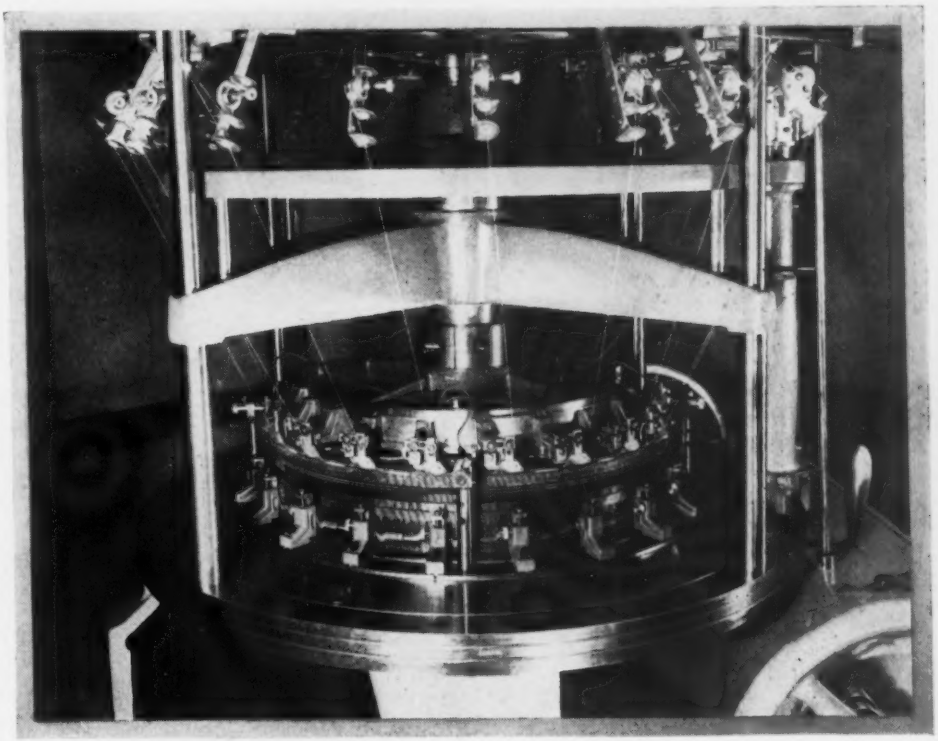
—EARLY DELIVERIES ON 12 AND 14 C

Multifeed RIB MACHINE

Seeing this machine in operation is believing. So we especially welcome you to our plant at any time for a demonstration. Type A. M. Multifeed Rib Machine is a beauty in design and the last word in construction and mechanical refinements. But most important of all this machine will give *greater production* now when you need it most and come the day when *cost of production* is paramount you will find it the lowest cost producer on the market. Note these construction and design features:—

features

- ***Gear driven dial***
- ***Oversized dial shaft***
- ***All ball bearing enclosed drive***
- ***Multidisc clutch***
- ***Free wheeling for easy hand turning***
- ***Adjustable motor mount***
- ***Belt driven take off with infinite speed changes***
- ***Clutch actuated roll up for even tension***
- ***Simplified caming system both on cylinder and dial***
- ***One feed per diameter inch***
- ***Sizes in production from 12" to 24" inclusive***
- ***Early deliveries on 12 and 14 cut machine***



● **EDMOS** PRODUCTS CORPORATION, manufacturer of these machines, operates one of the most modern, well equipped plants in the country. Every operation from heat treating to final testing is under the direct control of men with years of experience in the manufacture of Knitting Machinery.

See it soon!

Producer

EDMOS

PRODUCTS CORPORATION

13 CHRISTOPHER AVENUE
BROOKLYN 12, N. Y.

14 CUT MACHINES

Bemberg*

38TH KNITTING ARTS EXHIBITION

**BEMBERG is the registered trade-mark of the AMERICAN BEMBERG CORPORATION*

BOOTHS 267 268 277 278

Photograph courtesy Proctor & Schwartz, Inc.

No Sticking to Forms!!

No Build-Up of Deposits!!

When you use this water-dispersed finish on your Nylon hose, you'll have no trouble with hose sticking, or with building up of deposits on the forms.

There are many other reasons why you should investigate this dependable one-treatment finish.

BOOTH 218

OTHER ADVANTAGES

- Imparts notable snag resistance.
- Gives a good body without undesirable stiffness.
- Clarifies and tightens stitch without sacrificing length.
- Gives adequate dulling without danger of chalky deposits due to uneven deposition.
- Especially useful for giving a body to sheer hose for easier handling after boarding.
- Treated hose can be handled with a minimum of pull threads.
- The finish lasts for the life of the hose.
- The finish is insoluble when dry, unlike conventional finishes.
- Easy to use without changes in operations or equipment.
- One single treatment is all that is required. No assistants are needed.
- Dermatologically safe, having no primary irritating effect and causing no sensitization.

onyx

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In Canada: Onyx Oil & Chemical Co., Ltd. Montreal, Toronto, St. Johns, Que.

For Export: Onyx International Jersey City 2, N. J.

Boger & Crawford

cordially invites you to visit their

Booths, Nos. 261-262-283-284

at the

Knitting Arts Exhibition

to be held in the

Atlantic City Auditorium

Atlantic City, N. J.

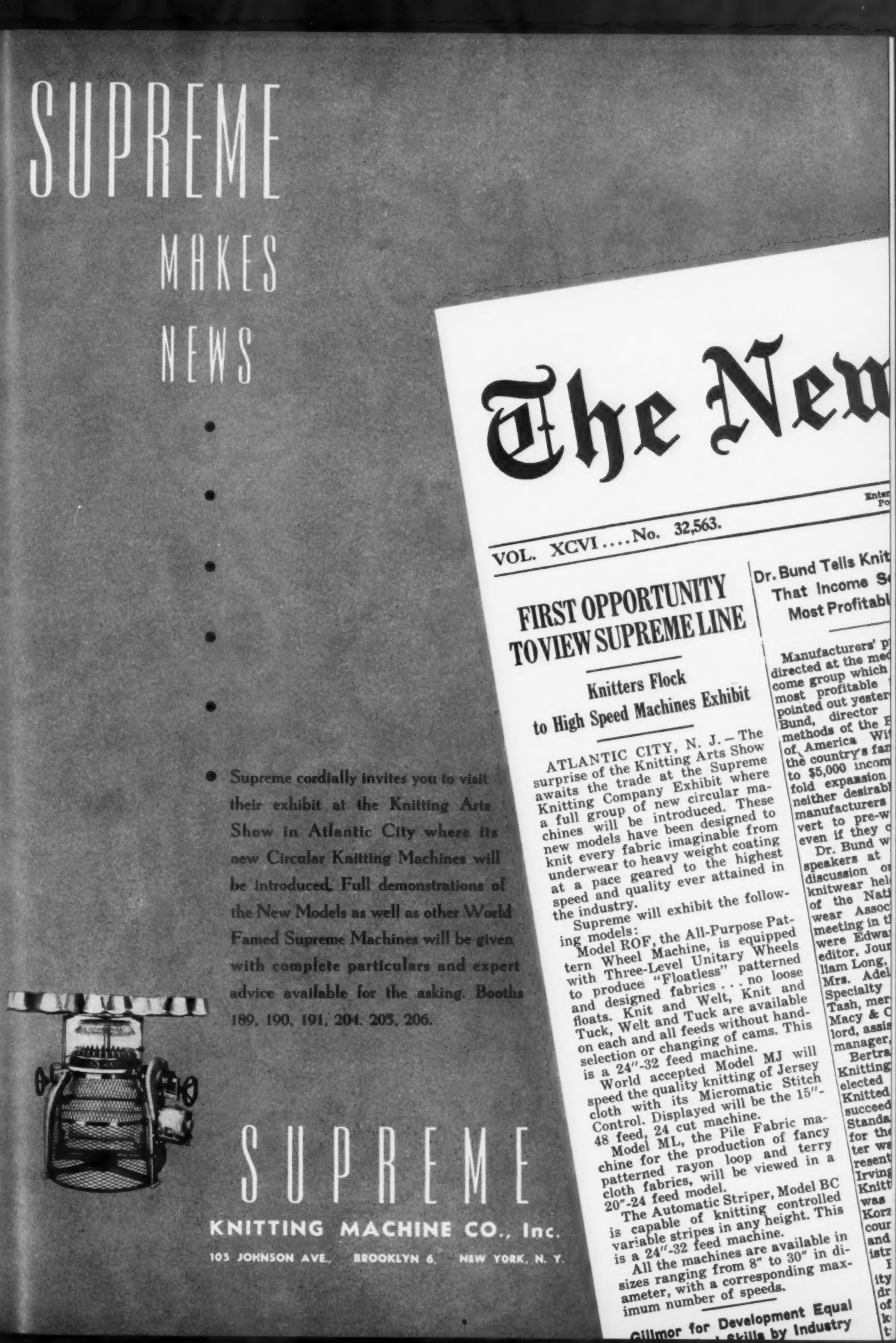
from April twenty-ninth to May second inclusive

Nineteen hundred and forty seven

Frederick Boger

PRESIDENT

SUPREME MAKES NEWS


The New
VOL. XCVI .... No. 32,563.
FIRST OPPORTUNITY TO VIEW SUPREME LINE
Knitters Flock to High Speed Machines Exhibit
ATLANTIC CITY, N. J. — The surprise of the Knitting Arts Show awaits the trade at the Supreme Knitting Company Exhibit where a full group of new circular machines will be introduced. These new models have been designed to knit every fabric imaginable from underwear to heavy weight coating at a pace geared to the highest speed and quality ever attained in the industry.
Supreme will exhibit the following models:
Model ROF, the All-Purpose Pattern Wheel Machine, is equipped with Three-Level Unitary Wheels to produce "Floatless" patterned and designed fabrics . . . no loose floats. Knit and Welt, Knit and Tuck, Welt and Tuck are available on each and all feeds without hand-selection or changing of cams. This is a 24"-32 feed machine.
World accepted Model MJ will speed the quality knitting of Jersey cloth with its Micromatic Stitch Control. Displayed will be the 15"-48 feed, 24 cut machine.
Model ML, the Pile Fabric machine for the production of fancy patterned rayon loop and terry cloth fabrics, will be viewed in a 20"-24 feed model.
The Automatic Striper, Model BC is capable of knitting controlled variable stripes in any height. This is a 24"-32 feed machine.
All the machines are available in sizes ranging from 8" to 30" in diameter, with a corresponding maximum number of speeds.
Dr. Bund Tells Knit
That Income S
Most Profitabl
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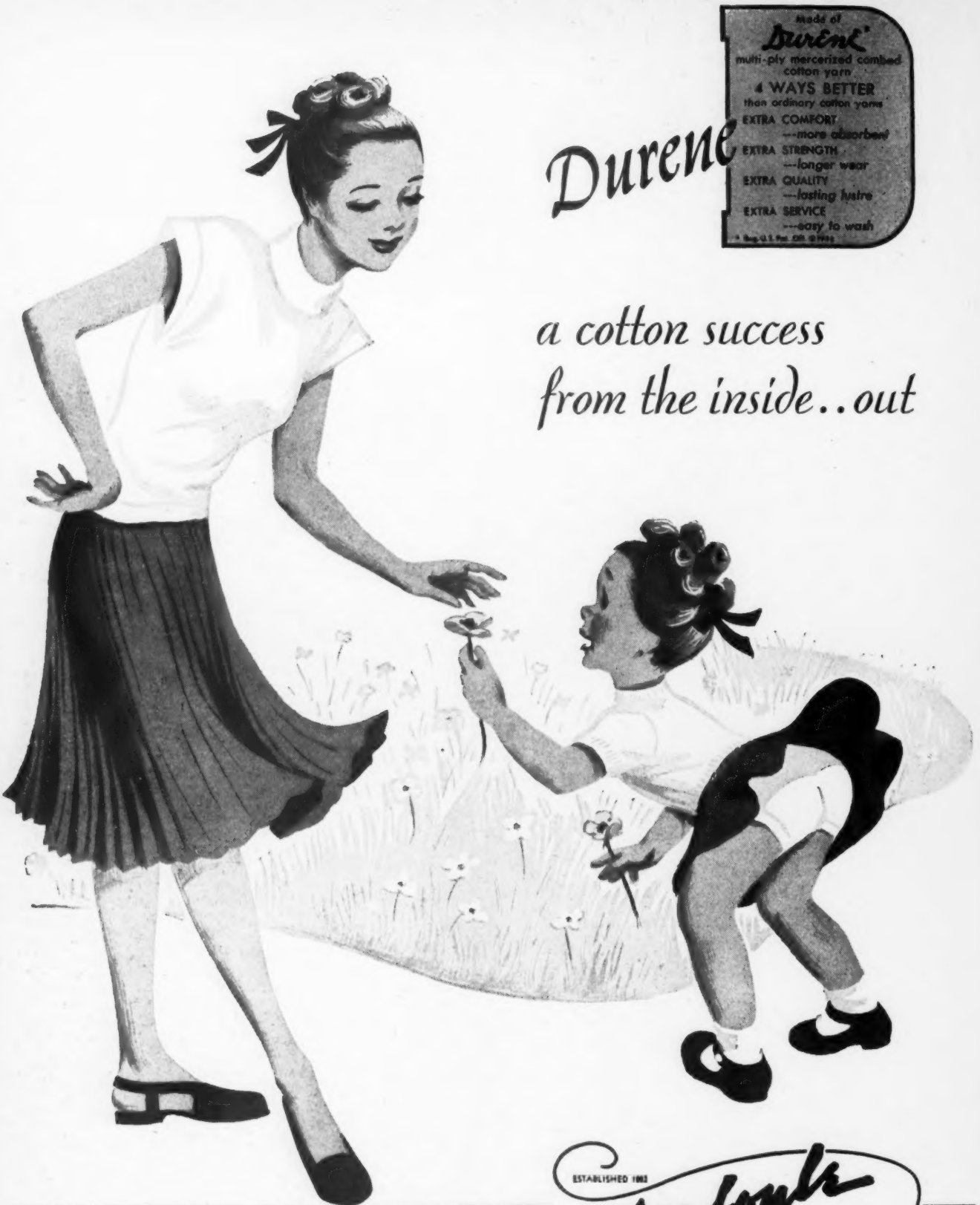
Gillmor for Development Equal
Skills by Industry

- Supreme cordially invites you to visit their exhibit at the Knitting Arts Show in Atlantic City where its new Circular Knitting Machines will be introduced. Full demonstrations of the New Models as well as other World Famed Supreme Machines will be given with complete particulars and expert advice available for the asking. Booths 189, 190, 191, 204, 205, 206.

SUPREME

KNITTING MACHINE CO., Inc.

105 JOHNSON AVE., BROOKLYN 6, NEW YORK, N. Y.



NEOPHIL

Neophil, the Nylon Seaming and Looping Thread for Nylon Full-Fashioned Hosiery, made by the Premier Thread Co., Pawtucket, R.I.

MADE OF Weartwist YARN MERCERIZED COTTON

ESTABLISHED 1813

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AMERICA'S OLDEST MERCERIZERS

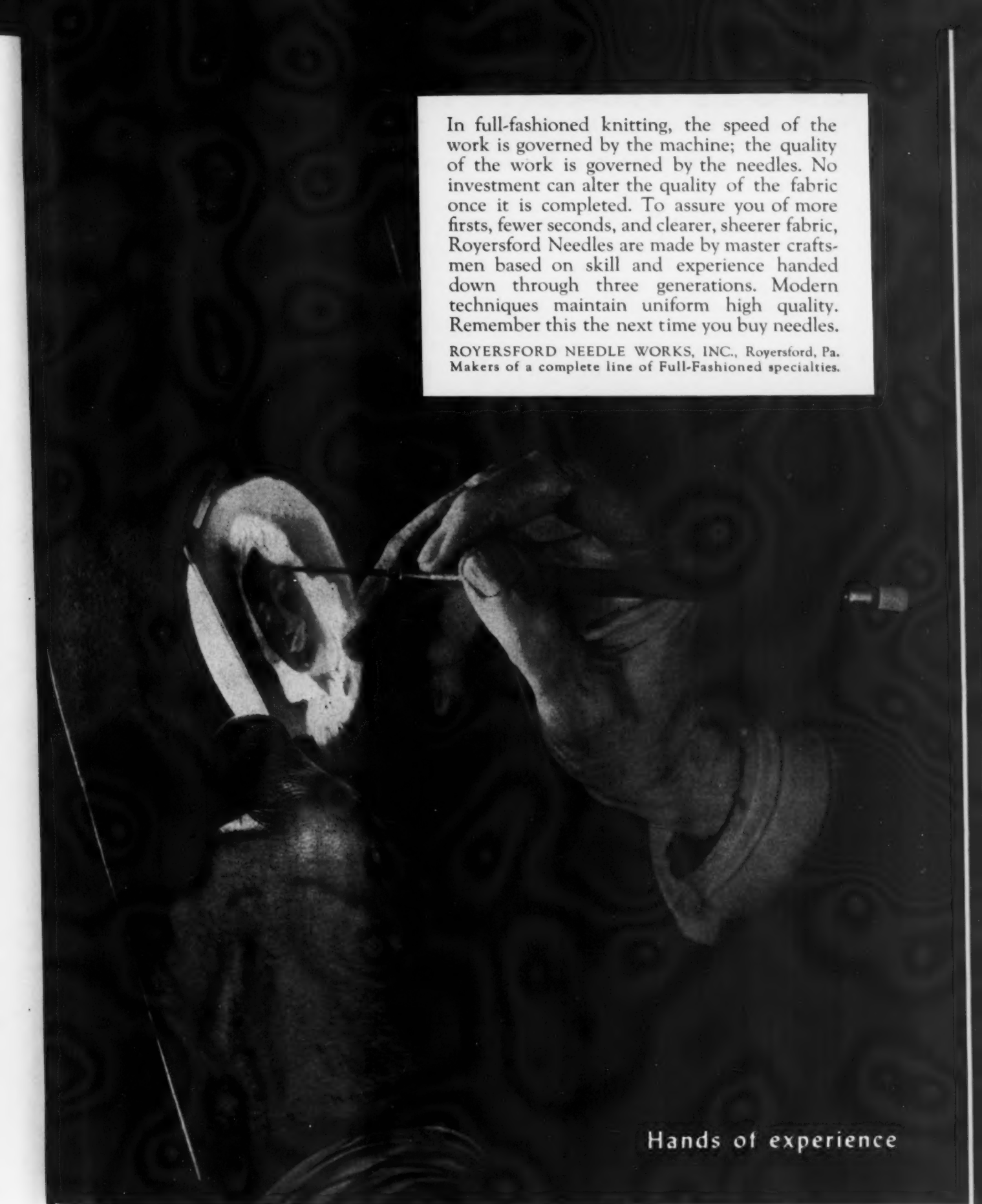
Durene*

ABERFOYLE MANUFACTURING COMPANY
123 South Broad Street, Philadelphia 9, Pa.

—and in the South
ABERFOYLE MANUFACTURING COMPANY
Belmont, North Carolina

Representatives in principal textile centers of the world

*Reg. U. S. Pat. Off.


In full-fashioned knitting, the speed of the work is governed by the machine; the quality of the work is governed by the needles. No investment can alter the quality of the fabric once it is completed. To assure you of more firsts, fewer seconds, and clearer, sheerer fabric, Royersford Needles are made by master craftsmen based on skill and experience handed down through three generations. Modern techniques maintain uniform high quality. Remember this the next time you buy needles.
ROYERSFORD NEEDLE WORKS, INC., Royersford, Pa.
Makers of a complete line of Full-Fashioned specialties.
Hands of experience

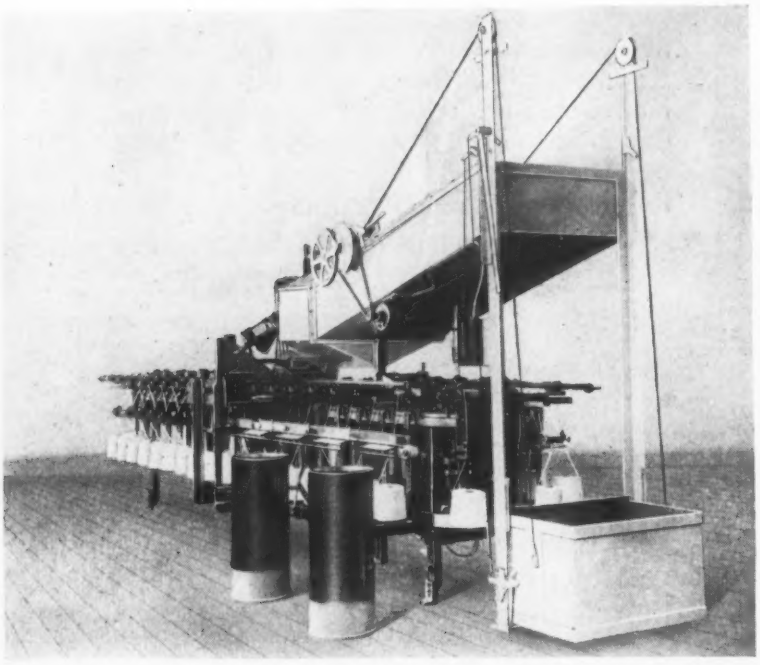
Royersford

—the Master Needle Maker

ABBOTT MACHINE COMPANY

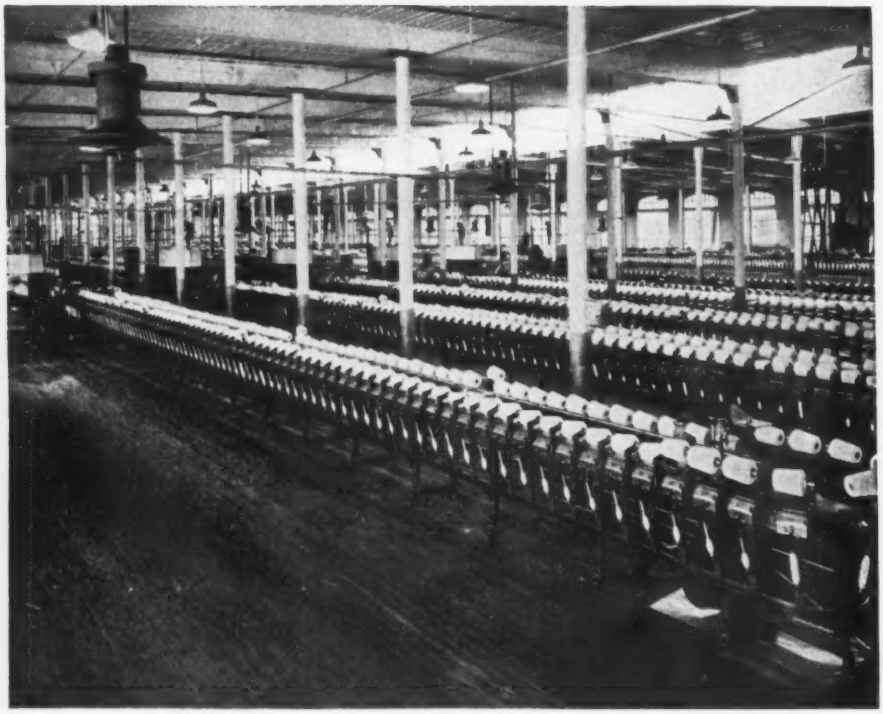
WILTON, N. H.

Southern Representative—L. S. Ligon, Greenville, S. C.



AUTOMATIC QUILLER

Travelling Spindles. Only one automatic head. Empty bobbins are dumped into large box on the floor, a lever is pushed which hoists the box up, dumps the bobbins, and returns to the floor automatically. Full bobbins discharge into cans or boxes. Minimum labor and investment cost. Production 2000 bobbins per hour per operator.



AUTOMATIC CONE OR TUBE WINDER

Travelling Spindles. 60 to 200 spindles with one operator.

Will wind
- Warping Cones
- Twisting tubes
- Paper tubes
- Dye tubes
- Knitting cones

Production 900 to 1000 bobbins per hour per operator.

Investigate new method of spinning all yarn on large warp bobbins—wind and slub automatically onto four-pound cones — use cones in high-speed warping—also for rewinding on automatic quiller for filling.

You are cordially invited to visit our booth at the Knitting Arts Exhibition, Atlantic City, April 29th through May 2nd. On display in Reynolds' booth you will see many new and important applications of aluminum as used in textile mills and textile mill equipment. These applications have been developed and perfected by Reynolds Textile Engineering Division working in close cooperation with engineering departments of textile mills, machinery manufacturers and accessory suppliers.
Your questions and problems concerning the use of light metals in the textile industry can be discussed with competent sales and engineering personnel who will be in attendance at the Reynolds display.
We are looking forward to seeing you at our Booth # 420-1, to the right of the main entrance.
Textile Sales Division

REYNOLDS METALS COMPANY

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NORTH AMERICAN RAYON CORP.
NARCO
NARCO
We'll be Seeing You at the 38th Knitting Arts Exhibition
BOOTHS
196 197 198 199
LEFT OF THE REGISTRATION BOOTH

STEPLESS Speed Changes

. . from A-c. circuits!

See the . . .

RELIANCE V★S DRIVE

in actual operation!

BOOTHS 427 and 428
38th KNITTING ARTS EXHIBIT

Atlantic City Auditorium
Atlantic City, N. J.

APRIL 29th THROUGH MAY 2nd

V★S, the *All-electric, Adjustable-speed Drive operating from A-c. Circuits,* brings to any production or processing operation an unlimited selection of *stepless* speed changes. Acceleration and deceleration are unbelievably smooth. And every V★S function can be performed automatically or manually, with all-electric control from nearby or remote stations!

Whatever flexibility of operation you need to increase quantity and quality of output can be provided the V★S way—simply, safely and economically. V★S control means instantaneous starts and stops — slow speeds for inching, threading or close inspection of work in process — maintenance of proper tension — reversal at any point desired. For more money-saving facts about the V★S Drive write for Bulletin 311.

RELIANCE ELECTRIC & ENGINEERING CO.

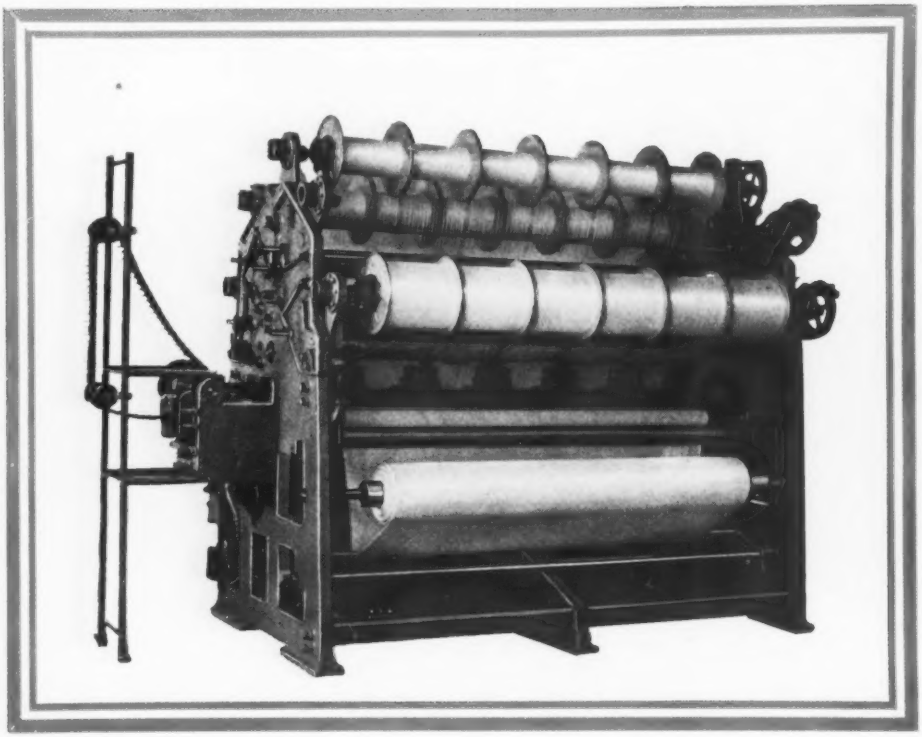
1086 Ivanhoe Road **Cleveland 10, Ohio**

Appleton, Wis. • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit • Gary Grand Rapids • Greenville, S. C. • Houston • Kansas City • Knoxville • Los Angeles • Milwaukee Minneapolis • New Orleans • New York • Philadelphia • Pittsburgh • Portland, Ore. • Roanoke, Va. Rockford • St. Louis • San Francisco • Seattle • Syracuse • Tampa • Tulsa • Washington, D. C. Sao Paulo, Brazil

RELIANCE A-C D-C MOTORS

"Motor-Drive is More Than Power"

A Fully Inter-related Line of the World's



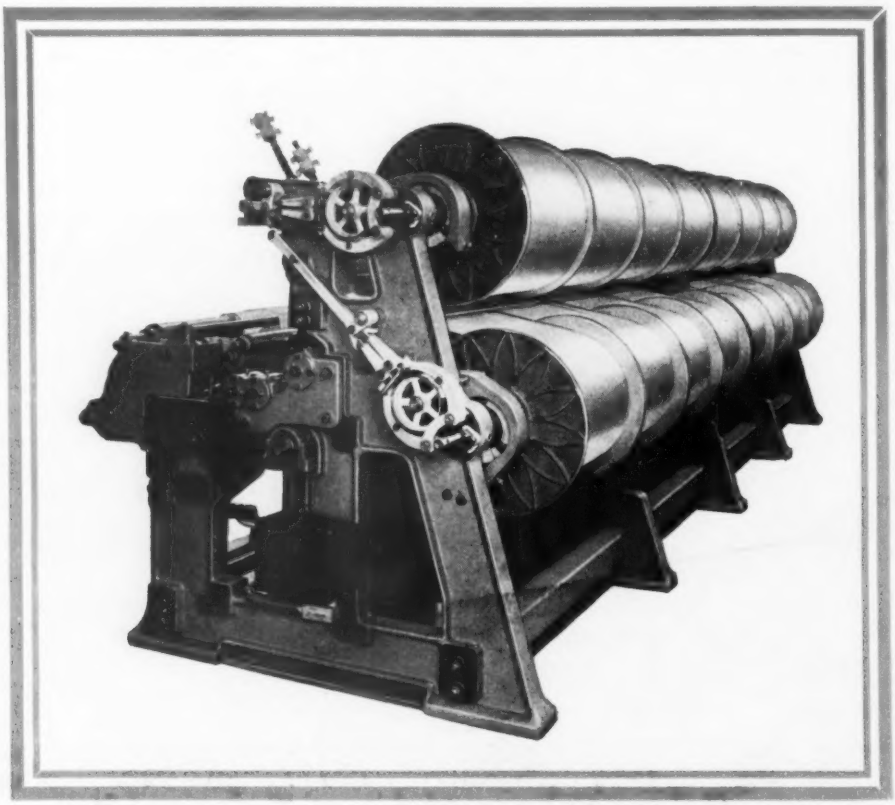
- These new machines are making textile history. Tomorrow's new fabrics will be made on these faster machines of today.

  See them at Atlantic City—or send for the folders that give all the facts about them.

- The Reiner Kayloom is a combination weaving and knitting loom, employing warp and filling as in weaving. It can also be supplied as a plain, single needle bar Raschel machine.

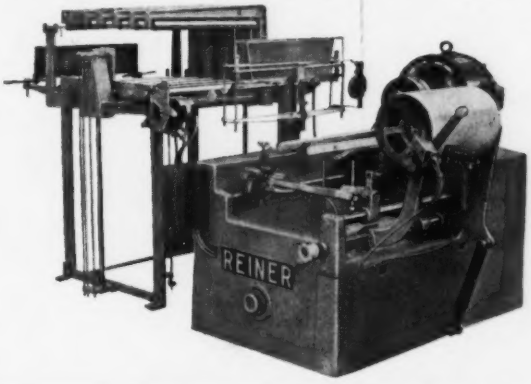
Other Reiner Products

- Single Type Creels
- Truck Creels
- Skinner Racks
- Thread Tensions (Counterbalanced and disc)
- Beam Loading Wagons
- Hydraulic Beam Lift Wagons
- Automatic Stop Motion Equipment



- Reiner High Speed Tricot Machine Model RT-1, takes spools up to 21" flange diameter; also conventional 13¾" spools. Knitting width 168" or 84"—28 gauge (English) or to your specifications. Pattern wheel or chain link drive. An unexcelled producer of quality fabrics.

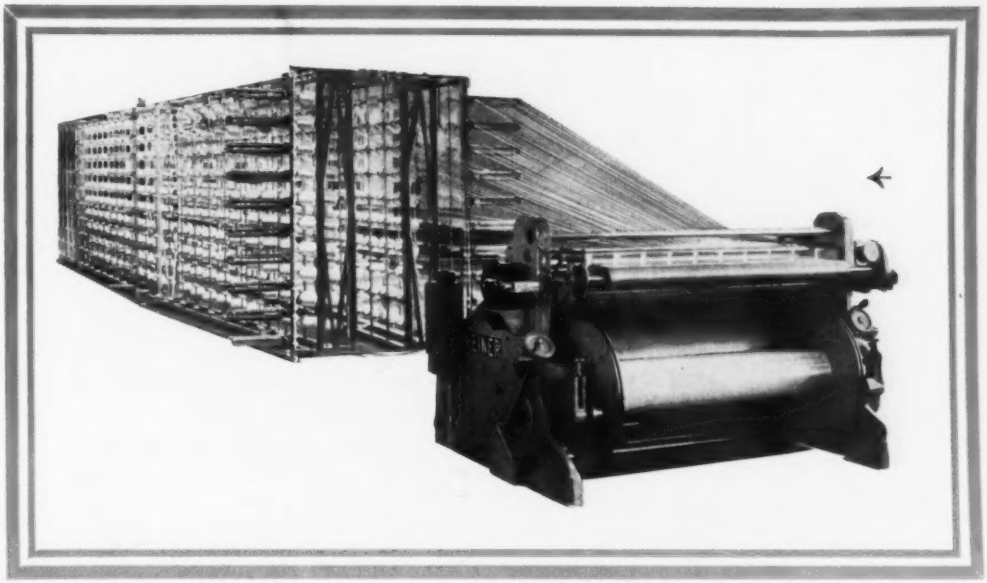
Most Productive Knitting Machinery



- The Reiner Section Beam Warpers, for spools from 18" to 84" long, with flange diameters from 18" to 30". Also the Reiner Multiple Unit, for milanese or narrow fabric (ribbon) warps.

You can see them all IN ACTION at the KNITTING ARTS EXHIBITION

BOOTHS 230-239



Reiner Magazine Creel and Full Width Beamer

Creel has latest stop motion equipment, balloon control, cone stabilizers, and disc tensions, adjustable for fine or coarse yarns. Single or Truck types available.

Beamer—full width, all purpose, high speed beamer for stainless warping of delicate yarns, such as filament rayon, spun rayon, cotton, wool, worsted, linen, acetate, nylon, etc.

Other Reiner Products

- Raschel Machines
- Twin Knitters
- Auto Heelers
- Automatic Bobbin Winding Machines *(for Quilting and Stitching Machines)*

FOUNDED IN 1[illegible]

ROBERT REINER INC.

550-556 GREGORY AVENUE
WEEHAWKEN, NEW JERSEY

10 MINUTES FROM TIMES SQUARE. Take Bus Nos. 61, 67, 167 from the Times Square Public Service Terminal at 260 West 42nd Street, New York City. Get off at Pleasant Avenue, Weehawken, New Jersey. From there turn left and walk through the underpass up to Gregory Avenue . . . . . TELEPHONE: UNION 7-0502, 0503, 0504, and 0505.

FOSTER MODEL 57 DOUBLERS

● AT CROWN MANUFACTURING CO. ("Crown College")

CROWN MANUFACTURING COMPANY of Pawtucket, R. I., has a long standing reputation for quality products. It is not strange therefore that this company standardized on Foster winding and doubling equipment only after exhaustive tests.

Crown handles from 8/1 to 40/2 in spun rayon, fine cotton and blends for gabardines, tropicals and cavalry twills, and uses two process doubling. 8¼" diameter supply cones weighing 4¼ lbs. are wound and inspected on Foster Model 102's, while doubling is done on Foster Model 57's. Only two ends are being doubled in the illustration, but up to five ends can be handled on the Model 57, if desired. The packages shown here are 7" traverse, 8½" diameter and weigh 4¾ lbs. each.

Crown Manufacturing Company and many other leading textile manufacturers use Foster Model 57 Doublers because they assure uniform twisting, eliminate "corkscrew" yarn and dropped ply. This is done economically and efficiently with the help of the following features:

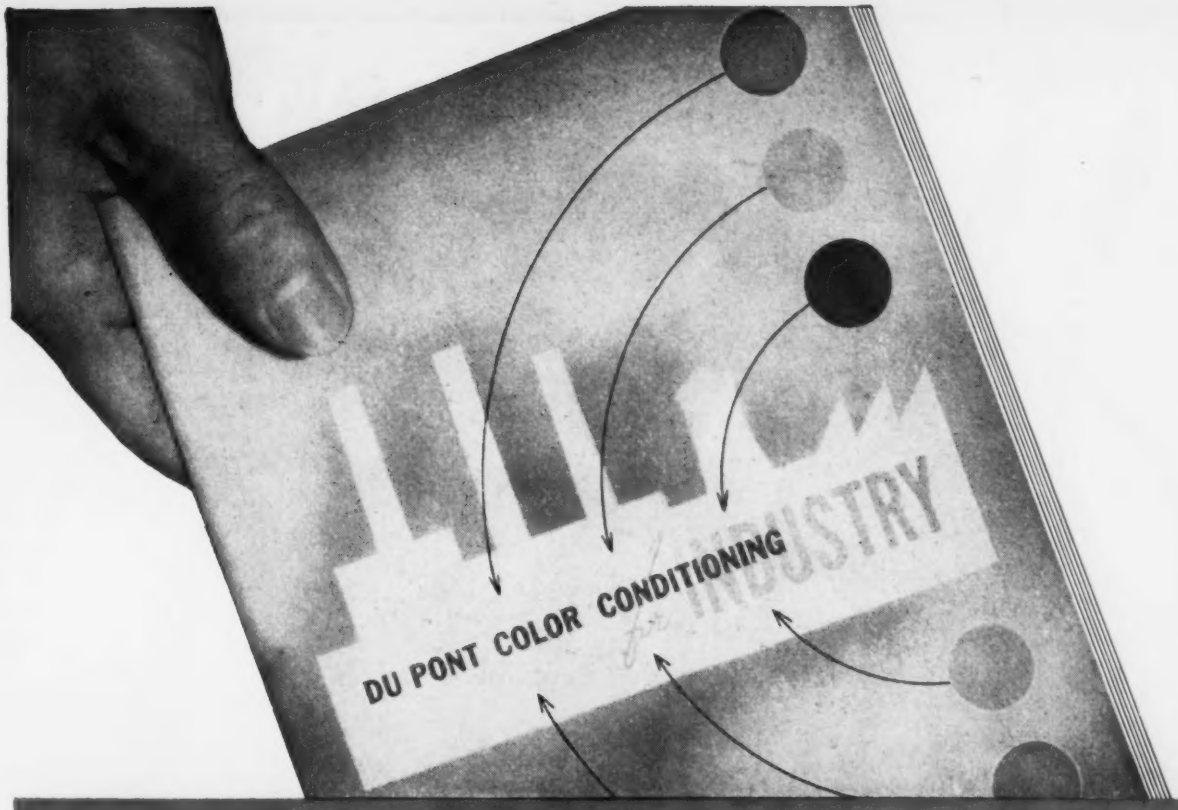
1. Ends go from doubling roll to the traverse guide in back of package without any sharp bends. Minimum strain on yarn.
2. Guard on thread roll prevents yarn from jumping off doubler roll when threading up.
3. Quick-acting stop motion, with an efficient brake that comes up under package and contacts the full length of the tube, leaves sufficient yarn for single end piecing when the supply runs out.
4. Tension and slub catcher (when required) for quick threading and automatic yarn inspection.

Machine Arranged for One Process Doubling

CIRCULAR A-90 ON REQUEST

FOSTER MACHINE CO., Westfield, Mass., U. S. A.

SOUTHERN OFFICE — JOHNSTON BUILDING, CHARLOTTE, N. C.;
CANADIAN REPRESENTATIVE — ROSS WHITEHEAD & COMPANY, LIMITED, UNIVERSITY TOWER BUILDING
660 STE. CATHERINE STREET WEST, MONTREAL, QUEBEC



FREE! GET YOUR COPY OF THIS NEW BOOK ON DU PONT COLOR CONDITIONING

Shows you how to use color profitably to—

- **Boost production**
- **Increase employee morale**
- **Improve operating efficiency**

AT YOUR fingertips . . . a 32-page fact-filled book pointing the way to safer, more efficient, more productive working conditions. It contains actual case histories and shows how you can have these same benefits in *your* plant . . . easily and economically.

Color Conditioning helps you select scientifically correct colors for walls, machinery, and equipment—in shop areas, offices, washrooms, cafeterias, etc.

Mail the coupon today for your free copy of "Color Conditioning for Industry."

DU PONT
REG. U. S. PAT. OFF.
Color Conditioning
BETTER THINGS FOR BETTER [illegible]
. . . THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.), T-4
Finishes Division, Wilmington 98, Del.

Please send, free of charge, your 32-page book that shows what COLOR CONDITIONING can do for my plant.

Name_____ Title_____

Firm_____

Address_____

City and State_____

Hofmann

MICRO

REG. TRADE MARK

WELT TURNERS

45 - 48 - 51 - 54 - 60 GAGE

24 - 26 - 28 - 30 SECTIONS

REGAGING TO

51 - 54 - 60 GAGE

24 - 26 - 28 - 30 SECTIONS

FOR

READING • HSL • KALIO MACHINES

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SIMPLEX TRICOT

FOR

GLOVE • BATHING SUIT • DRESS FABRICS

NOW READY TO ACCEPT ORDERS FOR EARLY DELIVERIES

YOU ARE CORDIALLY INVITED TO DISCUSS DETAILS WITH OUR REPRESENTATIVES IN ATTENDANCE AT BOOTHS NOS. 330, 331, 354 AND 355.

C. A. HEPP
P. SCHOENSTER
H. L. WIRTH
J. A. STRAUSSBERGER

SUPPLIERS TO THE TEXTILE TRADE FOR OVER 25 YEARS

ALFRED HOFMANN PLANTS

WEST NEW YORK, N. J.

Smooth, swift *Standard Durene* protects your customers' satisfaction in the better looks, greater comfort and longer wear of your knit goods

. . . protects your production profits, too, by giving you more "firsts" per hour.

Modern Standard Durene's free-running smoothness and uniformity stem from our over seventy years' spinning experience and research with complete control of every processing step from selection of raw cotton to the packaging of this fine mercerized cotton yarn.

Use Standard Durene's smooth, swift knitting characteristics to protect your knit goods market in the stiff selling days ahead.

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Representatives in Central and South American Countries

Will You Bleach Open Width or Rope?

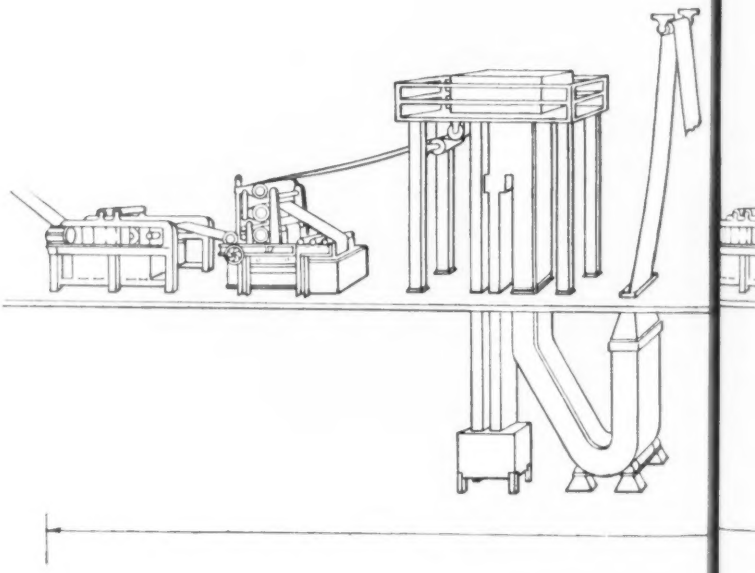
Get The Facts Before You Decide

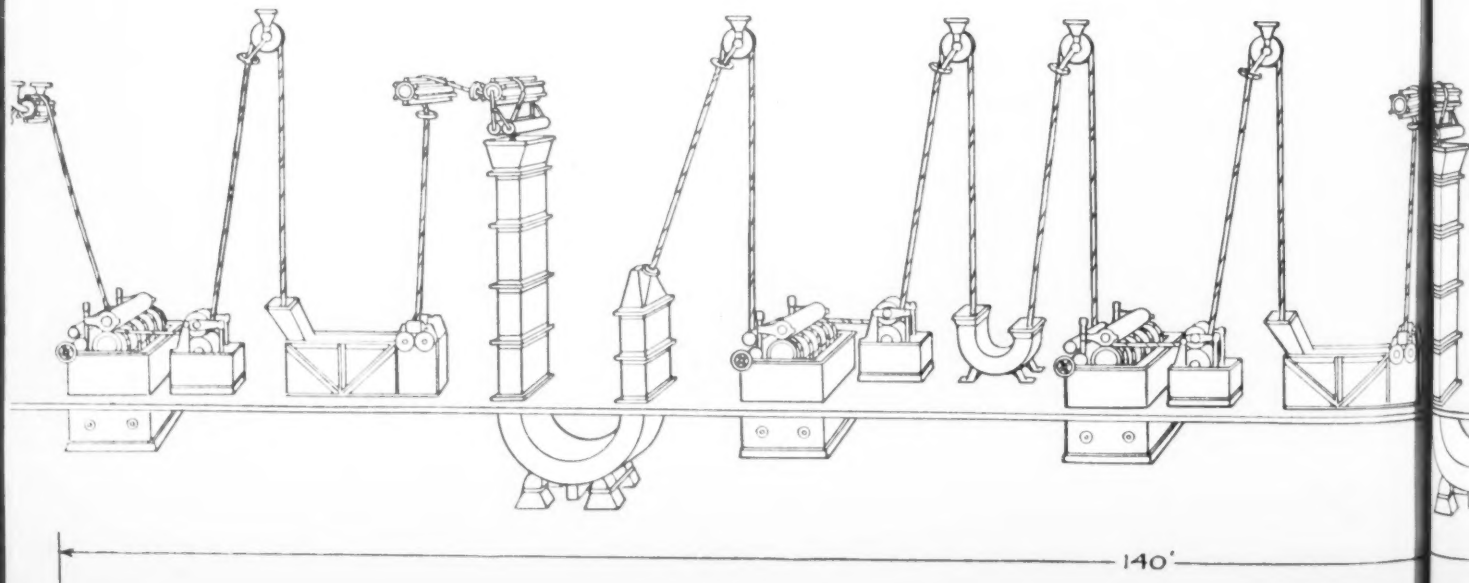
There is no guess-work about planning a continuous bleaching installation with Butterworth performance data as your guide. Open Width or Rope — DuPont or Becco process — Butterworth offers you a background of bleaching experience unique in the Textile Industry. Butterworth Continuous Bleaching Ranges produce a superior quality bleach with overall savings as high as 40 per cent in

Butterworth Continuous Bleaching

Open Width Range (DuPont Process)

After washing in a 6-Roll Horizontal Washer, the cloth is passed through a Caustic Saturator, where it is thoroughly impregnated with caustic soda solution. Cloth is then steamed in heater tubes and plaited down into the J-box. Guide rolls are at the top of each leg of the heater tube. Leaving the J-box the cloth is thoroughly washed in three 6-Roll Horizontal Washers, which will bring the alkalinity of the cloth down to ¼ of 1%. Cloth next goes into a Peroxide Saturator where it is impregnated with a solution of hydrogen peroxide. The cloth now passes through a heater tube and goes on into a J-box where it remains for approximately one hour to allow the cloth to bleach thoroughly. Removed from the J-box, the cloth is given a final wash in two 6-Roll Horizontal Washers.





chemicals, steam, labor and production time. Inspection windows in the J-boxes enable you to eliminate many of the seconds caused by wrinkles, improperly mixed chemicals, and other headaches common to older bleaching methods.

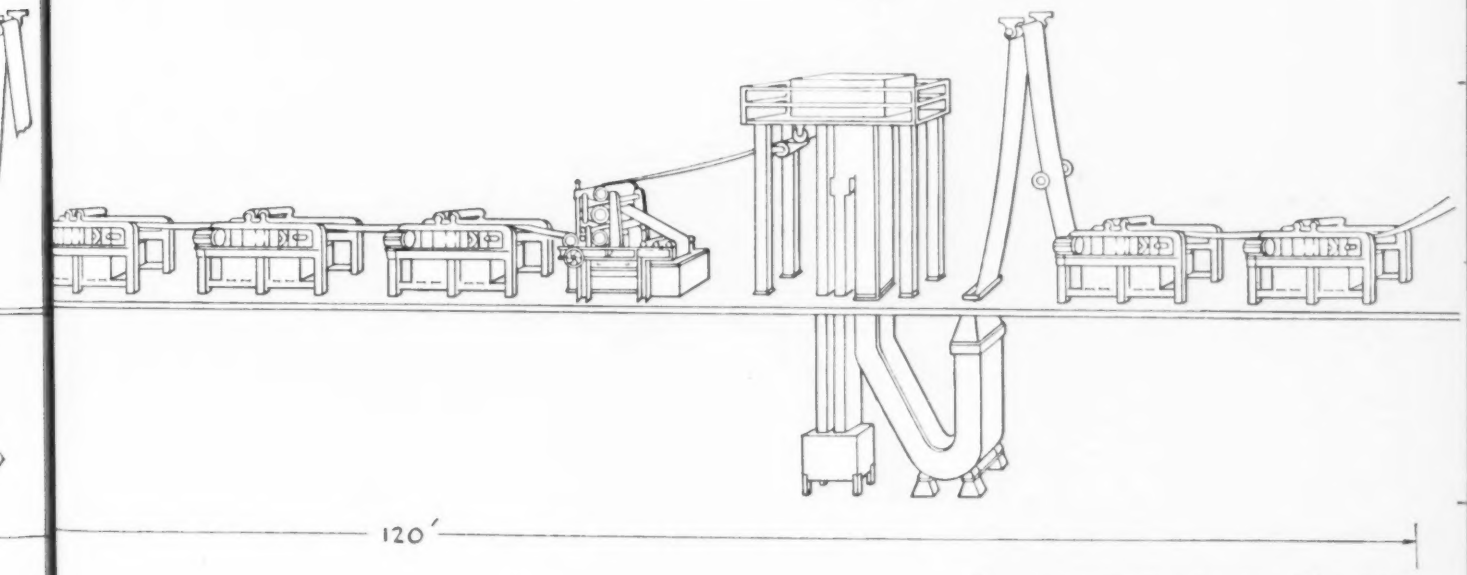
If space limitations are an important consideration in your mill, remember this: a Butterworth Continuous Bleaching Range requires only 55 per cent of the floor space necessary for an equal production with kier boiling.

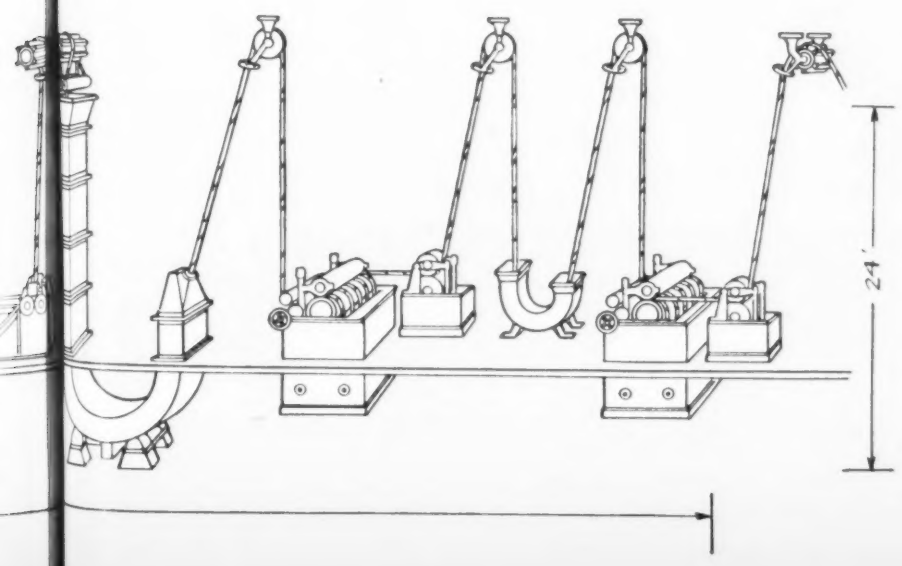
Butterworth engineers will be glad to work with you on your bleaching problems. Write us today.

Butterworth

H. W. Butterworth & Sons Company, Philadelphia 25, Pa.

TEXTILE FINISHING MACHINERY COMPANY DIVISION, Providence, R. I. - 1211 Johnston Bldg., Charlotte, N. C. - W. J. Westaway Co., Hamilton, Ont. ARGENTINA: Storer & Cia., Buenos Aires - AUSTRALIA: Noel P. Hunt & Co., Ltd., Melbourne - BELGIAN CONGO: Paul Pflieger & Co. - BOLIVIA: Schneiter & Cia., Ltda., La Paz - CHILE: Schneiter & Cia., Ltda., Santiago - COLUMBIA: C. E. Halaby & Co., Medellin - CUBA: Thos. F. Turrull, Havana - ECUADOR: Richard O. Custer, S. A., Quito - FRANCE: Georges Campin, Le Perreux, Seine; Rene Campin, Sceaux, Seine - MEXICO: I. Slobotzky, Mexico, D. F. - MIDDLE EAST: Arlind Corporation - NORWAY: Dr. Ing. Otto Falkenberg, Oslo - PERU: Custer & Thommen, Lima - SOUTH AFRICA: Texmaco, Johannesburg - SWEDEN: Elof Hansson, Goteborg - URUGUAY: Storer & Cia., Ltda., Montevideo - VENEZUELA: Herbert Zander & Co., Caracas.





Butterworth Continuous Bleaching

Rope Range (Becco Process)

Cloth is washed in a Tight Rope Washer and given maximum extraction in a pneumatic Squeezer before going into the Caustic Saturator. Here the cloth is impregnated with caustic soda solution. At the delivery end of the machine, two horizontal squeeze rolls with pneumatic pressure device and recording instrument permit full knowledge of the pressure being applied. Cloth next goes through a Plaitor where a traveling pot-eye distributes the rope from front to back as well as across the width of the J-box. Steaming compartments in the third and fifth sections of the "J" and a small steaming unit in the bottom of the "J" are used according to the amount of goods in the J-box. Leaving the J-box the cloth is washed in a Tight Rope Washer, passed through a micro-set Squeezer and timing Scray, a small J-box for holding approximately 25 yards of goods. It then passes through another Tight Rope Washer and a pneumatic Squeezer where the desired extraction is achieved. This is followed by the application of hydrogen peroxide in a Peroxide Saturator. Goods are then fed through a Plaitor into a J-box; taken through a Tight Rope Washer and micro-set Squeezer, thence into a Scray, and then another wash in a Tight Rope Washer and delivered through a micro-set Squeezer into the white bins.

"QUIET JUNIOR! Daddy's doing his homework"

Junior's old gent is a busy man.

He has to have plenty of "know-how" to keep on top of his job.

Sometimes it takes home-work to keep abreast of things and right now he's reading this issue of this McGraw-Hill magazine—the one you are holding in your hand.

Obviously, he's not looking for glamour, amusement, or entertainment. *He is strictly on the make for ideas.*

He wants to know what the other fellow is doing—what's new in methods and processes that will help him do a better job.

He's an avid reader of the ad-pages as well as the editorial content. The advertisements along industry's shopping street give him an opportunity to inspect the products and services of America's leading manufacturers—and he examines them with an eye to what they can do for him.

Yes—Junior's old gent is a busy man. But he never misses a trick!

To keep in touch with the parade • • • read the ads.

F-4

Laurel Brand means

better, more efficient, lower cost finishing for your

Yes, no matter what fiber or combination of fibers you are using, you will find there's a Laurel Product that will give you exactly the finish you desire.

For over thirty-seven years Laurel has been meeting successfully myriad challenges of leading dyers, bleachers and finishers. From this reservoir of experience and service has come the long line of Laurel processing agents to give you better, more efficient processing for every dollar you spend. Among them—

Laurel Boil-Off Oils and Compounds for more effective degumming of pure silk, rayon and cotton mixtures.

Laurel Emulsions and Softeners for better quality, better knitability, proper conditioning, proper regain.

Laurel Hosiery Finishes for softer, smoother appearance, greater freedom from snags, more wear.

Laurel Nylon Finishes for speedier processing, improved hosiery quality.

Laurel Olamine, cation active softener for exceptionally soft finish on dyed rayons.

Laurel Rayon Oils for faster, softer yarns, improved appearance and hand of your rayon.

Laurel Ruxite Coning Oils for superior lubrication, greater pliability, fewer breaks, higher winding efficiency.

Laurel Rayon Size for smoother, stronger, cleaner, more resilient rayon warps.

Laurel Textile Oil, a favorite of hundreds of customers because of its unusual versatility for improved quality and finish of fiber and fabric.

Laurel Wool Oils for maximum lubrication.

Laurel Wool Scouring Compounds for speedier detergent action, clearer, more even dyeings, cleaner, softer, loftier wool.

Laurel Special Finishes, Water Repellents, Mildewproofing and Flameproofing Compounds.

soaps, oils, finishes

LAUREL SOAP MANUFACTURING CO., Inc.

Wm. H. Bertolet's Sons
ESTABLISHED 1909

WAREHOUSES:

Paterson, N. J.
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Plan now to get the extra benefits Laurel Soaps, Oils and Finishes impart to your fibers or fabrics. Ask Laurel Technicians for their recommendations on your next processing job.

See THE FIRST POST-WAR OF NEW SMITH-DRUM

For Hosiery Dyeing . . .

See the 1947 model of the famous SMITH-DRUM Hosiery Dyeing Machine . . . the outstanding leader in sales for the past 30 years . . . the machine which dyes 9 out of every 10 pairs of hosiery made in the United States and Canada. If you are interested in producing uniformly perfect work and holding operating and maintenance costs to a minimum, don't miss this exhibit.

For Package Dyeing . . . Extracting . . . Drying . . .

See the first and only complete *system* specifically designed to handle yarn in package form . . . sample dyeing, package forming, dyeing, extracting and drying Each machine is the result of extensive research and experimentation to develop the best design for the specific purpose of handling packages only. This system results in faster, more uniform work . . . cuts costs . . . reduces labor. All machines will be on exhibit at the Show.

For Skein Dyeing . . .

See the machine that has completely revolutionized skein dyeing . . . that has increased production as much as 50% . . . reduced dyeing costs 25% to 30% . . . improved quality 20% to 100% . . . cut winding costs 25% to 50%! The improved post-war model of this noted Smith-Drum machine will be on exhibit.

Be sure to attend this most important exhibit in more than a decade . . . the Knitting Arts Exhibition at Atlantic City. You are cordially invited to make the Smith-Drum Booth your headquarters. We'll be looking for you!

SMITH, DRUM & COMPANY
Allegheny Avenue at 5th Street, Philadelphia 33, Pennsylvania

AT THE KNITTING ARTS

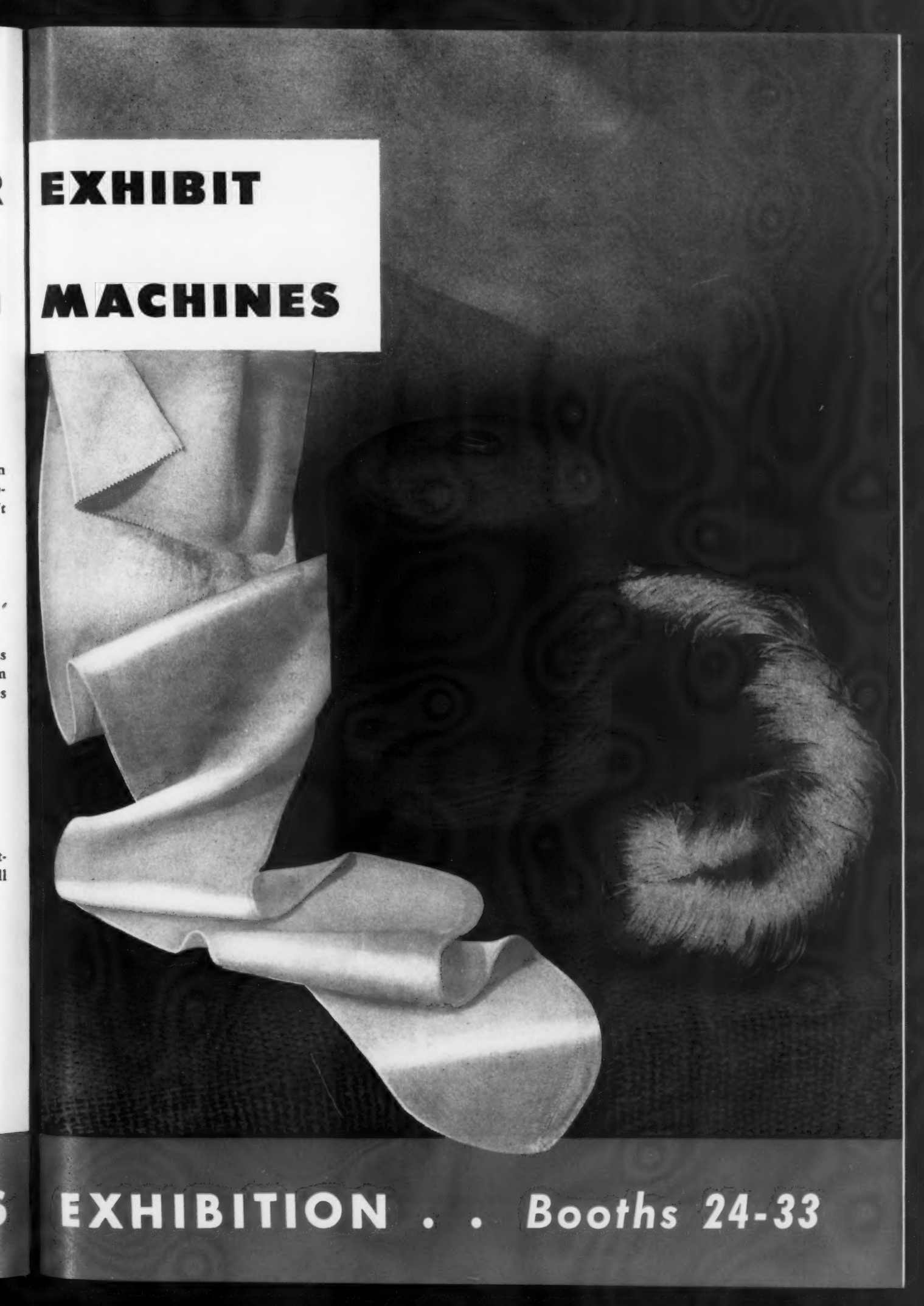
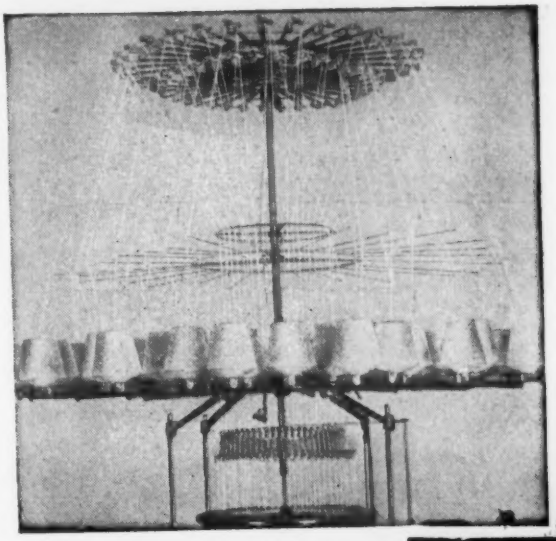


EXHIBIT
MACHINES
EXHIBITION . . Booths 24-33

WE LOOK AHEAD
WITH YOU IN MIND...
because the manner in which we satisfy your needs for superb processing of nylon, rayon and silk, makes for our reputation.
Now, in this very competitive market, you need hosiery of sheer beauty and incomparable clarity. We cooperate with you by devoting matchless skill in developing yarns that are uniform—yarns that run freely, knit smoothly, and reduce production costs.
A new era starts. Kahn and Feldman meets it with expanding facilities and greater research.
KAHN & FELDMAN, INC. ESTABLISHED 1898
200 MADISON AVENUE • NEW YORK 16, N. Y.
VISIT OUR EXHIBIT AT THE SHOW • BOOTH NO. 165

See The New Crawford Electrical Stop Motion

It brings out the **BEST** *in these machines:*



Crawford Electric Stop Motions are adaptable to any of these machines.

SCOTT & WILLIAMS
LEIGHTON MACHINE CO.
JACQUARD KNITTING MACH. CO.
SUPREME KNITTING MACH. CO.
CRANE MFG. CO.
H. BRINTON CO.
TOMPKINS BROTHERS CO.
WILDMAN MANUFACTURING CO.
STAFFORD & HOLT, INC.

Specify
the *NEW*
CRAWFORD
Electric
Stop Motion

More production, greater uniformity

performance based on more than 50 years of experience in hundreds of knitting mills *prove* when you specify Crawford you specify the finest.

CRAWFORD
Electric Stop Motions

have kept pace with the development in design and performance of these famous knitting machines. Our Stop Motions are designed, engineered and refined for the specific machine you buy. Tests prove Crawford brings out the finest in all of these machines.

Outstanding Features

1. All contacts protected from dust and lint proof enclosure
2. All contact areas enlarged for better contact and durability
3. Ideal accessibility. All parts interchangeable.
4. Low take-up finger avoids yarn entanglement
5. Cut-off switch works directly with knock-off. No outside switch connecting.
6. Screw driver adjustment for all yarns.

If you can't attend the Knitting Arts Exhibition at Atlantic City, send for a copy of our new 1947 catalog.

On View at the KNITTING ART EXHIBITION - Booth 217

The CRAWFORD MFG. Co.

New Brunswick, N. J. Tel. 2-0603

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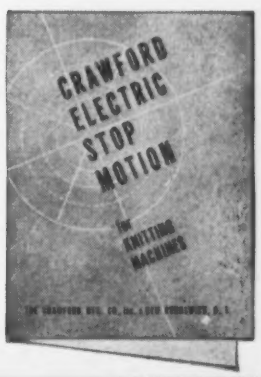

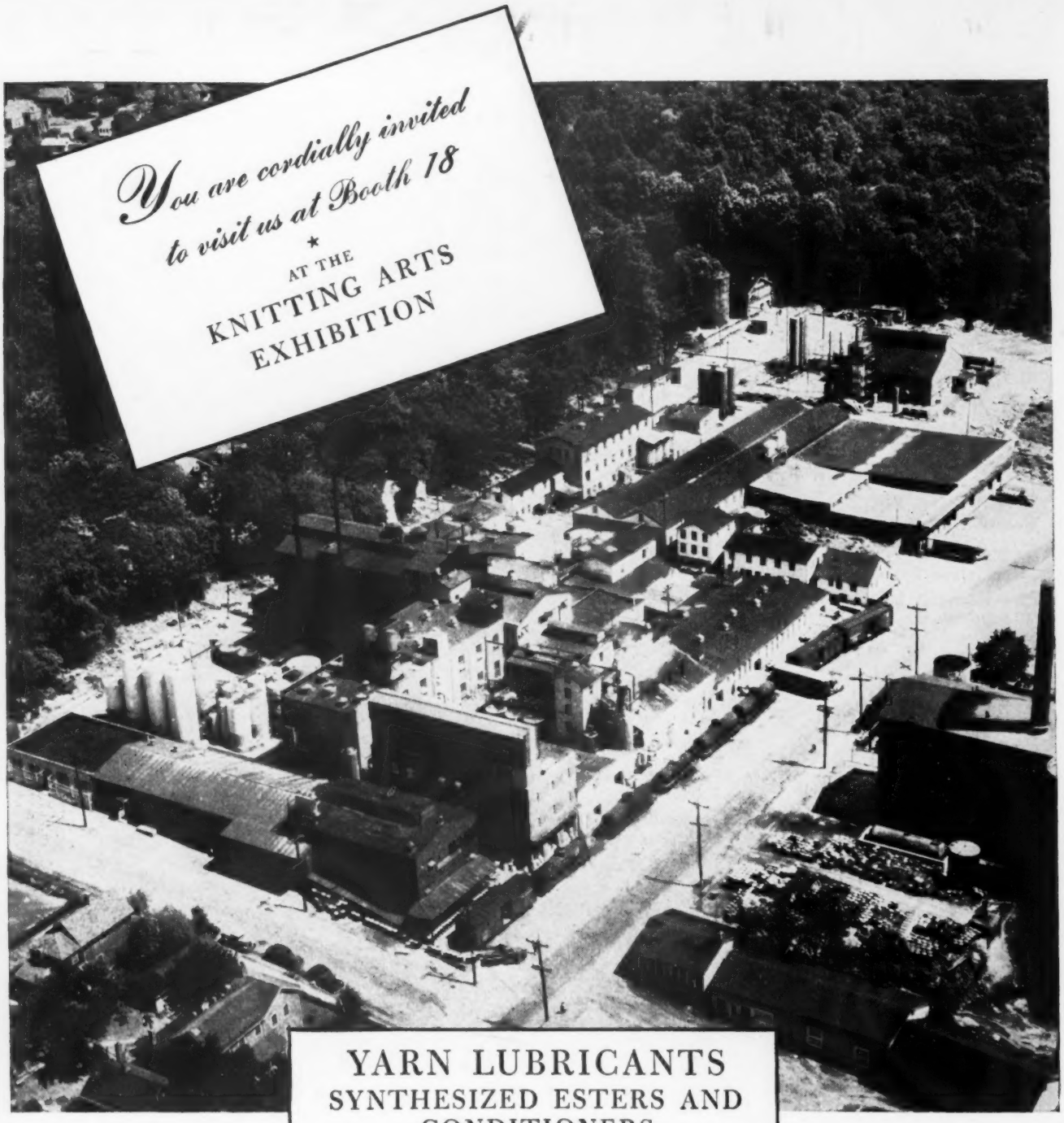

YARN LUBRICANTS
SYNTHESIZED ESTERS AND
CONDITIONERS
for Throwsters, Knitters, Weavers

E. F. DREW & CO., INC.

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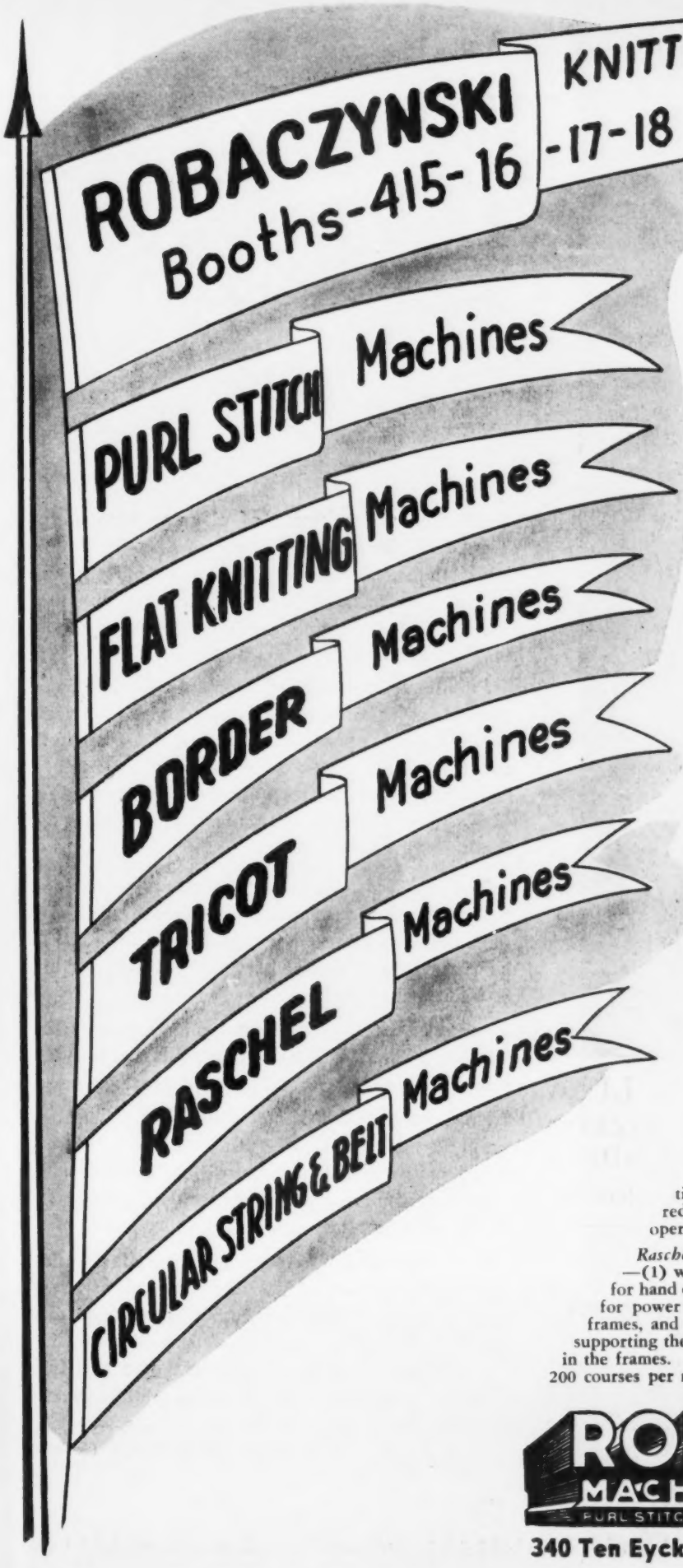

In Any Textile "Hall of Fame"

You will find beautiful outerwear and underwear fabrics—from leading knitting mills the world over, *products of the Robaczynski line of flat knitting machinery.*

For more than 30 years we have been building the most productive, versatile, low cost flat knitting machinery made in America. Robaczynski machines are simple to operate, of sturdy construction, advanced design, with all mechanical refinements, thus assuring them a long and carefree life. See them in operation at the Knitting Arts or by appointment at our plant at any time.

Purl Stitch: These machines produce open work as well as flat on flat with different types of color designs. They have a double sinker with improved jacquard card system allowing for the skipping of cards, thereby reducing the number of pattern cards in the design.

Cable, chain, rope, basket weave and other racking stitches are produced on these machines.
Notable advances have been made in design including a fabricated steel base which prevents warping and twisting. Inserted teeth easily replaced when a tooth breaks and many other scientific improvements.

V Type Flat: An efficient producer of cardigan stitches as well as 1x1 rib stitches automatically changing from one to the other. It produces all patterns of rack designs and four color striping. A new fabricated steel base prevents uneven knitting such as one side heavier than the other.

Border Machine: This machine has twin heads and twin individual take-down rollers, and has the possibility of racking. It can attain a speed of 100 rounds or 200 courses per minute. It is the most efficient machine of its type produced today.

Tricot Machines: Built in sizes from 84 inch to 180 inch, warps up to 21″ diameter with heavy foundations to take up the shock and distribute the weight evenly. Many novel improvements have been made such as setting the cams, adjusting rocker arms, presser and sinker bars by *indicators.* New let-off tension breaks permitting the highest range of speed in a spring beard needle machine. Height of machine is such that an operator can work in a natural position. The machine is designed and constructed to reduce the time and cost of setting up, providing efficient operation.

Raschel Machines: These machines are built in two types —(1) with fabricated frames, and connecting braces adaptable for hand or power operation, while the other is used exclusively for power and high speed, built with a steel fabricated base, frames, and braces, including brace over the top of the machine, supporting the guide bar rod with bearings other than those located in the frames. Substantially built to withstand a high speed of over 200 courses per minute.

ROBACZYNSKI MACHINE CORPORATION
PURL STITCH Lines and Lines and FLAT KNITTING MACHINES

340 Ten Eyck St., Brooklyn, N. Y.

Cellulose

in perpetuity

With the announcement of plans to construct a plant in British Columbia for the production of highly purified cellulose, Celanese Corporation of America has initiated another major step to assure the continuity of supply for the basic raw materials used in making its products.

Parallel action to assure the continuous supply of chemicals was commenced three years ago, through the Company's operations in Texas. Here Celanese constructed a modern chemical plant to produce from petroleum natural gases, the basic organic chemicals required for the manufacture of Celanese* synthetic yarns and plastics.

To provide a perpetual wood supply for the Celanese cellulose plant, the Government of British Columbia has reserved a large area of forest land, bearing types of timber best suited to the making of high purity cellulose.

Forest cuttings will be regulated in such a way that timber resources will be self-perpetuating through scientific management and planned afforestation.

Production from this new source will be used to supply a substantial share of the Company's additional requirements of cellulose and marketed to others in the industry, thus supplementing the existing world sources of supply.

This development is a further integration of the Company's operations with its sources of basic raw materials, and places Celanese Corporation in a strategic position in four major industries—cellulose, chemicals, plastics and synthetic textiles. Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

*Reg. U.S. Pat. Off.

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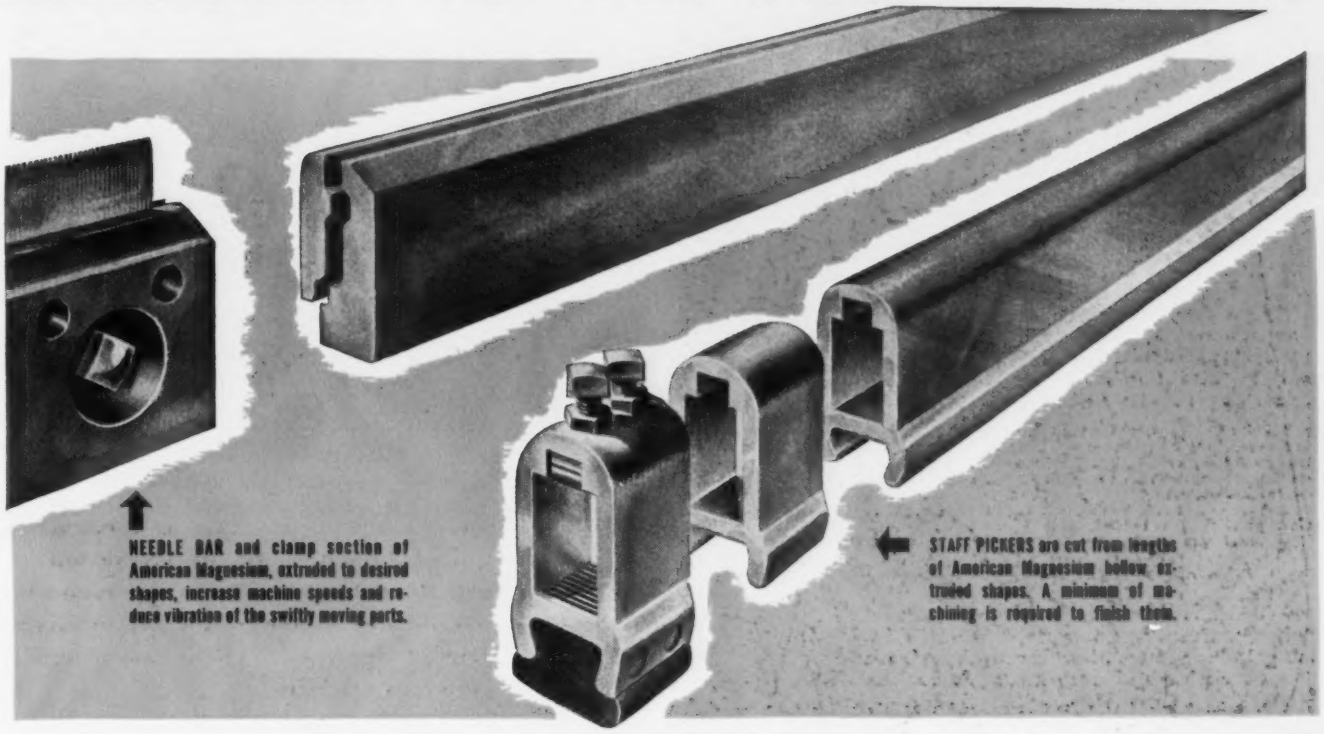
Celanese*

CHEMICALS . . . TEXTILES AND PLASTICS

EXTRUDED TO THE SHAPE NEEDED


NEEDLE BAR and clamp section of American Magnesium, extruded to desired shapes, increase machine speeds and reduce vibration of the swiftly moving parts.
STAFF PICKERS are cut from lengths of American Magnesium hollow extruded shapes. A minimum of machining is required to finish them.

WITH A **BONUS** IN LIGHTNESS

Whether it's a 14-foot needle bar for a warp knitter, or a small part like a staff picker, an extrusion in *American* Magnesium can produce it economically. Such savings are reflected in the cost of your mill's equipment.

In addition to manufacturing economies, such parts in American Magnesium provide real operating savings, slashing dead weight, saving power, cutting vibration, speeding up machines.

When the manufacturer of your new textile machines points out American Magnesium parts, you can be sure that he is giving you up-to-the-minute advantages in weight saving, vibrationless high speed, and lasting dimensional accuracy, less affected by load deflection or by the high humidity in which textile processes operate. You can be sure, also, that the light-metal know-how of Aluminum Company of America has aided him in making fullest use of magnesium's advantages. Write for "Magnesium in the Textile Industry", or call your nearest Alcoa sales office. Aluminum Company of America, sales agent for American Magnesium products, 1705 Gulf Bldg., Pittsburgh 19, Penna.

WEIGHT SAVING
that means lower shipping cost, easier handling, higher speeds without vibration.

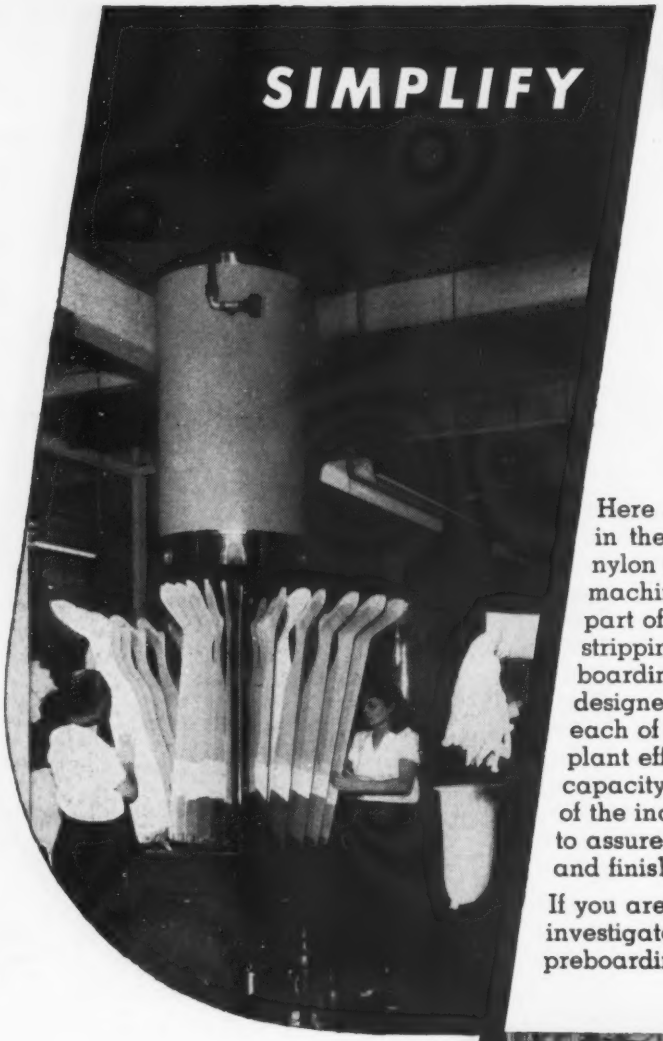
STABILITY AND STRENGTH
less affected by humidity and load deflection.

READY USEFULNESS
in many forms—castings, forgings, extruded shapes. Excellent machinability.

MAGNESIUM MAZLO Reg. U.S. Pat. Off. PRODUCTS

AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA



SIMPLIFY YOUR PRODUCTION OF NYLON HOSIERY

with PROCTOR PREBOARDING AND BOARDING EQUIPMENT

Here are two machines that, when operated together in the same mill, make preboarding and boarding of nylon hosiery almost entirely automatic. With neither machine is there any laborious work required on the part of the operators (except actual boarding and stripping) . . . and the latter is even automatic with the boarding machine. Made by the same manufacturer, designed by the same engineers, there is a simplicity about each of these machines that contributes largely to general plant efficiency. Each machine has a high output capacity—depending upon the type of hosiery and the skill of the individual operators. Output can be synchronized to assure maximum coordination between the preboarding and finishing departments.

If you are engaged in the production of nylon hosiery, investigate the advantages of combining Proctor preboarding and boarding equipment. Write today.

Above: Operators at work on one of the Proctor preboarding machines in use at Interstate Hosiery Mills, Lansdale, Pa.

Right: Boarding, drying, stripping, piling and counting are done automatically in the same mill, by a battery of Proctor automatic boarding machines.

PROCTOR & SCHWARTZ INC

PHILADELPHIA 20, PA.

"ON THE BALL"

to meet every fashion demand in BEACHWEAR, SPORTS WEAR, LINGERIE and all other knitted garments

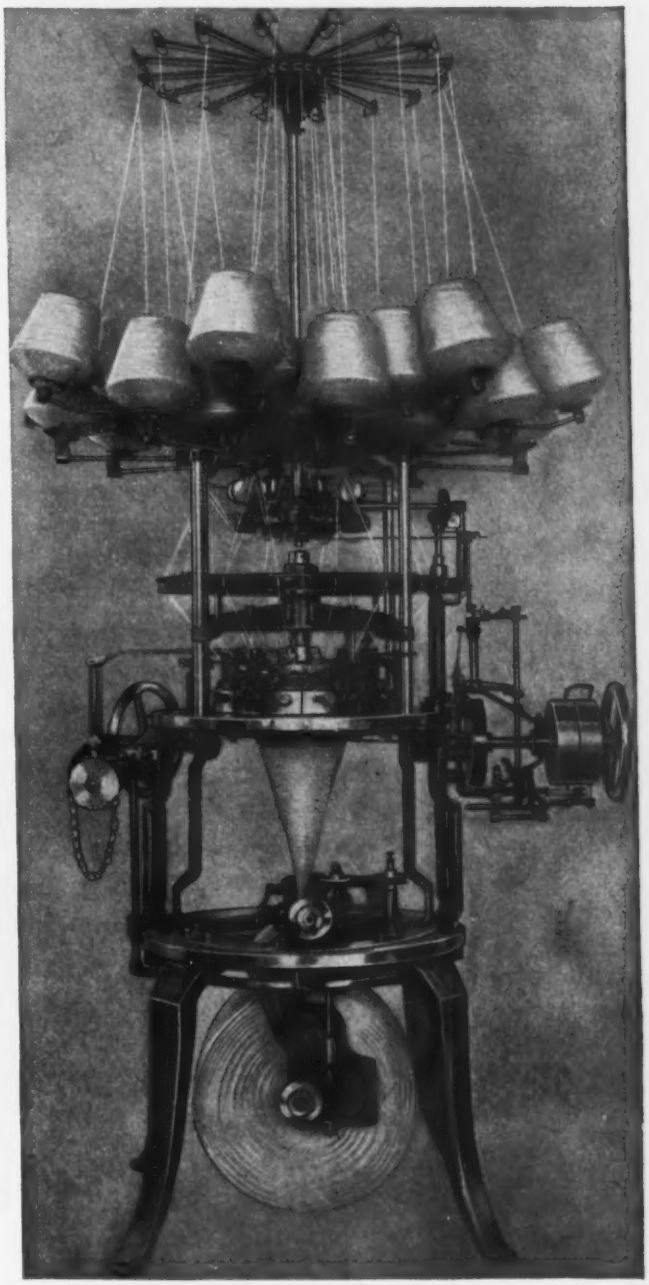
The style market for knitted wear is ever broadening, bringing to alert knitting mills new and increasing opportunities. The Wildman Multiple Feed Rib Machine offers many exclusive mechanical advantages that are reflected in more patterns and marked product improvements. For example:

1 *Yarn is fed under even tension*—furnishing wheels keep stitches even and garment of uniform length.

2 It is not necessary to stop machine to put on new cones—the start of one cone may be tied to the end of another.

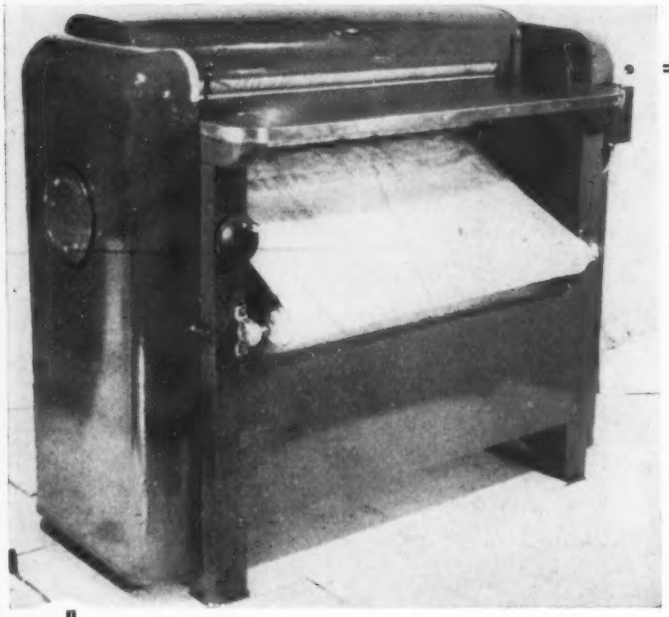
3 *Belt-driven take-up.* Ball and roller bearing throughout—the most sensitive and trouble-free take-up ever built into a circular knitting machine. No jerky stops and starts.

4 On the same floor space that an 8-feed machine occupies, this Wildman will DOUBLE PRODUCTION or BETTER with a power increase of only about one-third.



WILDMAN MFG. CO., Norristown, Pa.

The NEW
AINSLIE BRUSHING MACHINE



For Brushing Knitted and Woven Material Such as Hosiery, Gloves, Sweaters, Scarves, and Other Knitted or Woven Cloth

★

4 REASONS why this machine will make money for you

1. It Delivers a Perfect Job—Always. This Ainslie machine has been designed NEW, from scratch . . . to overcome all the deficiencies of old-type finishers. Day in and day out, it delivers a fast, steady output of work that can be depended upon to be uniform and perfect in every respect. It assures, regularly, the kind of satisfactory product that makes satisfied customers and growing profits.

2. It Handles All Kinds and Sizes of Goods. With this machine on your floor, you can handle practically any order for brushed finishes. It is the only one of its kind that does an equally perfect job on rayons, wools, cottons, worsteds, and mixtures. It is the only one that will take anything from a child's tiny mitten to a big bolt of fabric.

3. It Delivers the Exact Finish Your Customer Specified. There's no trouble at all in making this machine produce a light, shallow nap on rayon, for one order and then a heavy, deep pile on wool for the next order. You can always be sure of satisfying your customer with the exact degree of brushing that he wants.

4. It's Easy, Simple, and Economical to Run. No need for a master-mechanic, to run this machine — any boy can do it. Its entire operation is controlled automatically by a starting lever.

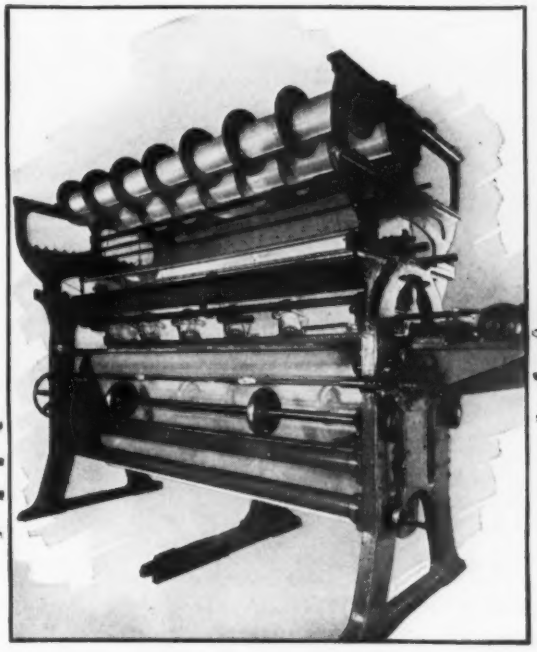
Infrequent Lubrication. All dust drawn off by automatic exhauster into convenient zipper bag. All moving parts entirely enclosed, out of operator's way, and safe from damage . . . yet instantly reached by doors thrown wide open at the touch of a trigger. Streamlined throughout, and beautifully finished.

AINSLIE KNITTING MACHINE CO. INC.

740-750 GRAND STREET — BROOKLYN 11, N. Y.

LATEST IN RASCHEL-TYPE WARP-KNITTING MACHINES!

NEW HIGH SPEEDS!



WIDE VERSATILITY!

UNUSUAL ACCESSIBILITY!

Three outstanding features combine to make the *Kidde* Knitter the last word in Raschel-type machines:

1. Exceptionally high sustained speeds—even on complicated patterns. These speeds are made possible by a radically new drum drive that combines the advantages of index feed and worm feed—and by a new motion on needle bars, replacing the conventional piston type movement.

The *Kidde* Knitter is specifically designed to withstand the wear and tear of these high speeds . . . as well as stresses of knitting such materials as rubber. Framework is of tubular construction . . . extra strong, extra rigid. Anti-friction bearings are liberally used.

2. Wide versatility. The *Kidde* machine will knit practically any type of thread, yarn or elastic . . . in simple or intricate patterns. A few examples: ELASTIC FABRICS for corsets, girdles, brassieres. DRESS FABRICS. VEILINGS and NETTINGS. CURTAINS. NARROW FABRICS: edgings, braidings, laces. SHOE CLOTH. KNITTED OUTERWEAR FABRICS for sweaters, polo shirts.

You can use single or double needle bars—and can knit a full 100 inches.

3. Unusual accessibility. With the *Kidde* Knitter, setting up and changing of patterns are quick, simple jobs.

The entire swing bar assembly can be adjusted as a unit, both vertically and horizontally. Stroke of the latch needles and guide needles can be readily adjusted . . . without need for changing cams. The full cloth roller can be easily removed from the side of the machine.

Get all three advantages with the *Kidde* Knitter!

See for yourself what the *Kidde* Knitter can do. A machine is in operation at our Bloomfield plant. We'll be glad to arrange for a demonstration—just write us for an appointment. A machine will also be displayed at the Knitting Arts Exhibition at Atlantic City.

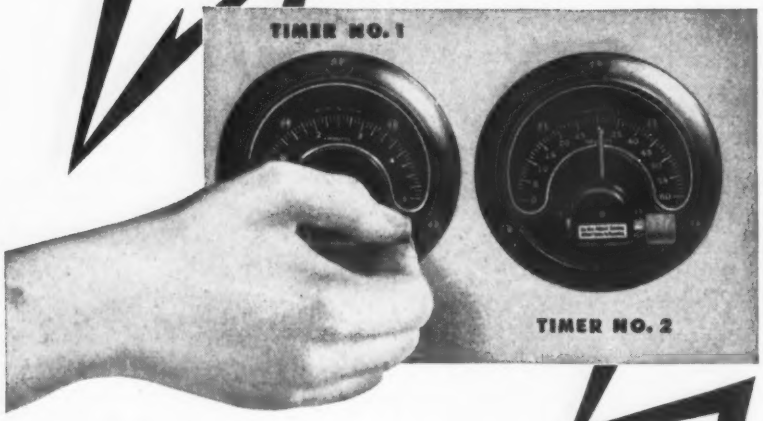
The word "Kidde" is the trade-mark of Walter Kidde & Company, Inc., and its affiliated companies.

Kidde Knitter

KIDDE MANUFACTURING CO., INC. • BLOOMFIELD, NEW JERSEY

Paramold 29's

Automatic Electric Controls Give More Uniform Results in Nylon Hosiery Processing



You determine the exact temperature and timing suited to your hosiery . . . set the Controls . . . and **Know that Every Stocking Processed in Paramold 29 will have the Same Perfection of Finish!**

Easy to Operate?—YES!

Only one operator required for Paramold 29 • Time-saving electrical operation insures greater output • Thermostatic Control starts Treating Timer when desired temperature is reached • A turn of the knob on Timer No. 1 predetermines your exact treating time • A turn of the knob on Timer No. 2 predetermines exact syphon time, exhausting steam rapidly.

Safer?—YES!

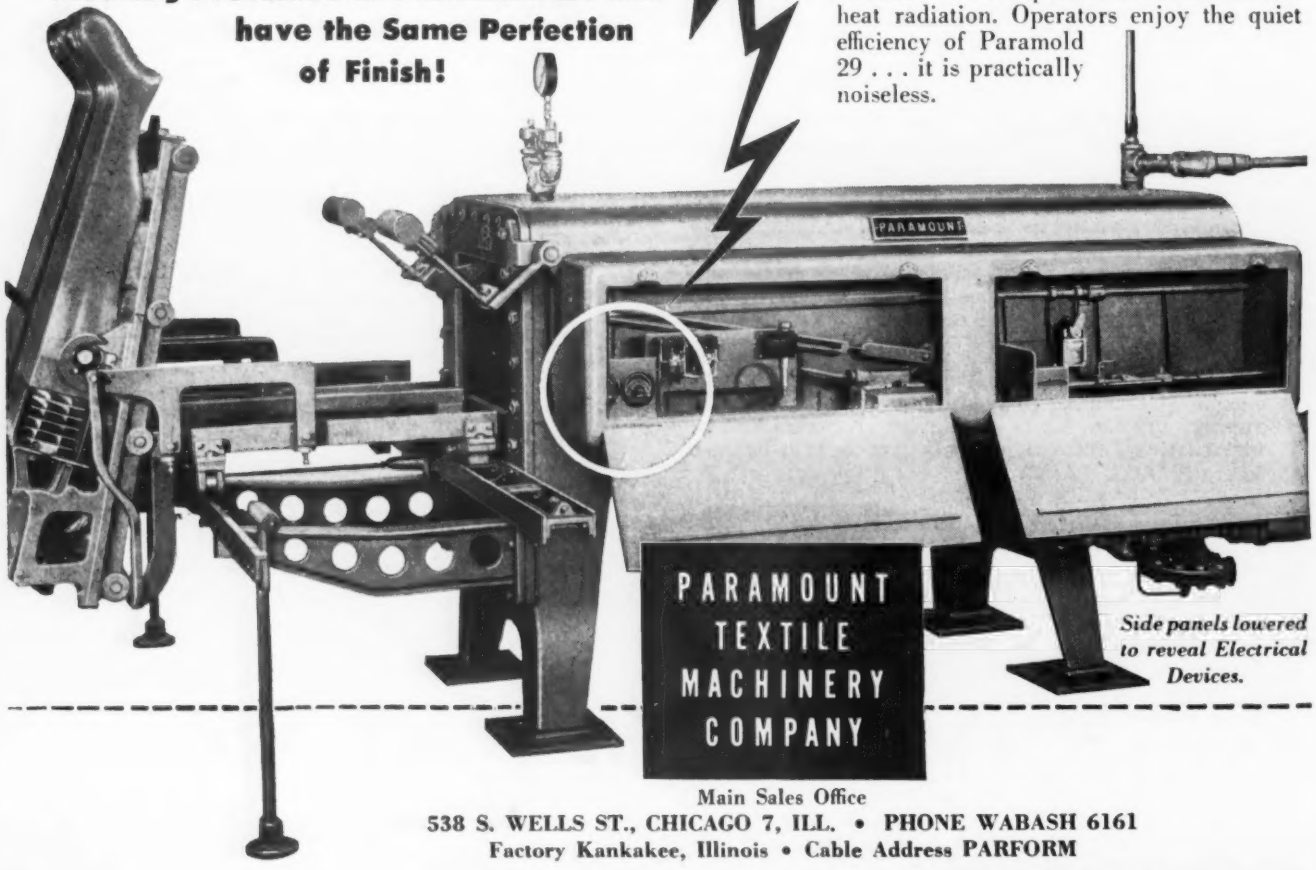
PARAMOLD is the only retort with SELF-SEALING DOOR! Controlled operation fully protects operator . . . prevents damage to hosiery, as NO OPERATION STARTS UNTIL PRECEDING OPERATION IS COMPLETED.

Minimum Maintenance?—YES!

Electrical devices employed are tested and proved for long, efficient service. *No complicated wiring!*

Working Comfort?—YES!

Paramold 29's improved insulation lowers heat radiation. Operators enjoy the quiet efficiency of Paramold 29 . . . it is practically noiseless.



Side panels lowered to reveal Electrical Devices.

PARAMOUNT TEXTILE MACHINERY COMPANY

Main Sales Office
538 S. WELLS ST., CHICAGO 7, ILL. • PHONE WABASH 6161
Factory Kankakee, Illinois • Cable Address PARFORM

Famous Firsts

THE FIRST AMBULANCE SERVICE in the U.S.A. was started in 1869 at Bellevue Hospital in New York City. It consisted of two horse-drawn delivery-type wagons, each of which was equipped with a box under the driver's seat containing "a quart flask of brandy, two tourniquets, a half dozen bandages, a half dozen small sponges, some splint material, pieces of old blanket for padding, strips of various lengths with buckles, and a 2-ounce vial of persulphate of iron."

THE FIRST AMERICAN MADE KNITTING MACHINE to produce Links-and-Links patterning in hosiery was the Komet Links-and-Links Machine, produced by Scott and Williams in 1939. This machine, which knits an almost unlimited variety of rib patterns, designs and fancy stitches, including argyle block patterns, in top, leg and foot, is one of the most versatile machines ever built. It is an outstanding example of S&W development work, which has pioneered many "famous firsts" that build business for the circular knitting industry.

SCOTT & WILLIAMS, INC.

MAIN OFFICE AND PLANTS: LACONIA, NEW HAMPSHIRE

Sales Office: Empire State Building, New York 1, N. Y. • *Divisional Offices:* High Point, N. C. • Reading, Pa. • Chattanooga, Tenn.

LEIGHTON

CIRCULAR KNITTING MACHINES

Featuring:

1. The most versatile knitting machine made because of the big, roomy dial outside the knitting point.

2. The Leighton principle eliminates sharp bends in the yarn making it possible to knit soft spun yarns with less breakage.

3. A wide range of yarn can be knit on the same machine without changing needle cuts. A distinct Leighton advantage.

4. Custom built to rigid specifications for long life and smooth continuous operation.

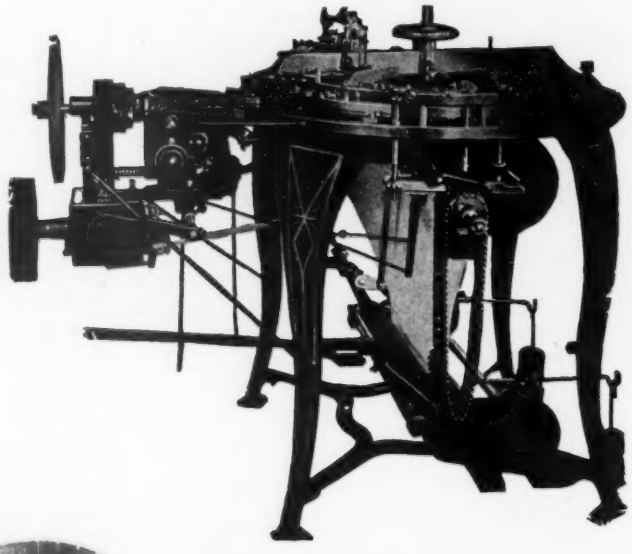
Now in Demand:

Full automatic Transfer Machines for Knit-on Cuffs and Bottoms. Multiple Feeds. 2½ to 10 cut. Two speed control. Two or three color stripe. Machines readily equipped with Brushing Attachments for automatically brushing garments as they are knit. Small size machines now being built for Juvenile sizes.

Built Right — Knits Right

Three Needle Selective Rack
Transfer Cap
Pattern Wheel
Single Stitch
Jacquard
Stripe & Check
Collar & Cuff
Cap & Legging
Shaker
Rubber
Sleevers
Trim Machines

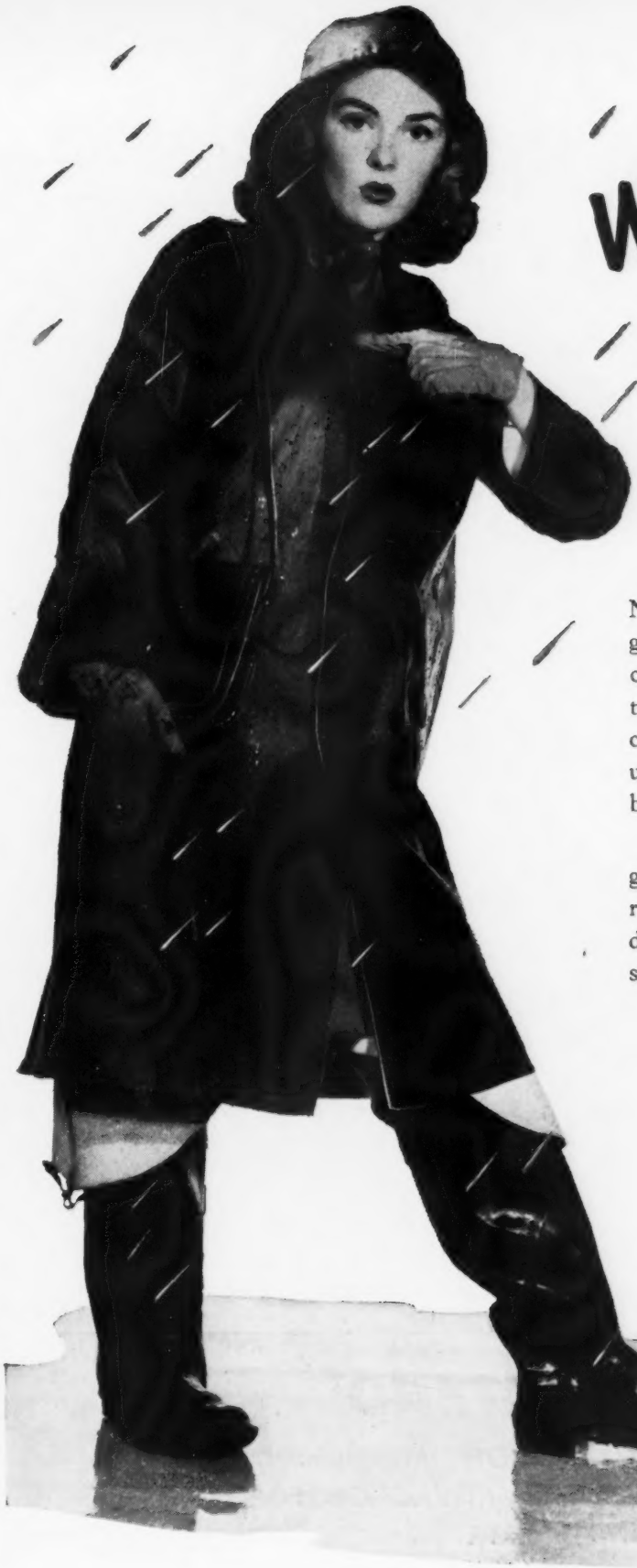
Machines built in all sizes
Fine and Course Gauges



LEIGHTON MACHINE COMPANY
ESTABLISHED — 1873

LEIGHTON

MANCHESTER NEW HAMPSHIRE
INCORPORATED — 1894



Who? Me silly?

Not at all. I'm just illustrating a point. We girls would rather sally forth looking like a caricature of a fisherman than arrive at our destination wearing water-spotted hosiery. We could start out dressed to kill . . . but what's the use if our glamour is going to be ruined by baggy, water-splashed stockings.

We want *DuraBeau* Finished Hosiery . . . gorgeous, elastic, smoky dull . . . enduring, snag-resistant . . . with *water and spot-repellency*. It definitely wears longer, always looks better, stays lastingly beautiful.

DuraBeau Finished Hosiery builds confidence.

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Reg. U. S. A. and Canada
TEXTILE
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Scholler Bros., Inc.

Mfrs. of Textile Soaps, Softeners, Oils, Finishes • Collins & Westmoreland Sts., Phila. 34, Pa. • St. Catharines, Ont., Can.

AN INVITATION
to the
KNITTING TRADE

The industry's leading manufacturers of knitting, dyeing and drying machinery, mill supplies and allied products, exhibiting their machines, processes and new mechanical features

INVITE YOU TO ATTEND
The 38th
KNITTING ARTS EXHIBITION
April 29 thru May 2, 1947

ATLANTIC CITY AUDITORIUM **ATLANTIC CITY, N. J.**

Under the Auspices

of

NATIONAL ASSOCIATION OF HOSIERY MANUFACTURERS

o

THE ATLANTIC CITY AUDITORIUM WILL BE TRANSFORMED INTO THE LARGEST KNITTING MILL EVER PUT IN OPERATION

Mill officials, company executives, purchasing agents, sales managers and key men in all branches and departments of the trade should plan to attend and become familiar with the latest and improved methods shown by over three hundred of the industry's leading manufacturers.

o

PLAN TO ATTEND!

ATLANTIC CITY PROVIDES EXCELLENT HOTEL ACCOMMODATIONS —AT A WIDE RANGE OF RATES—ATTRACTIONS FOR RELAXATION AND ENTERTAINMENT

Tickets may be secured free from exhibitors or from the management.

Albert C. Rau, Manager 929 Park Square Bldg., Boston, Mass.

"I'd certainly buy the machinery we need now if I knew the best way to finance it"

MR. MILL OWNER: Does the question of how to finance purchases of machinery and equipment concern you? If so, C.I.T. has a ready answer to this problem.

We will furnish funds in any amount, promptly and at reasonable cost, for the purchase of textile machinery and equipment. You can combine several items in one obligation; funds are available for immediate or future use on terms to suit your business needs.

We'll get together with you and work out an amortization program that will retire the obligation without overtaxing working funds. Payments can be spread over several years . . . top heavy maturities can be eliminated . . . under a simple finance plan that helps YOU.

When you buy textile machinery or equipment, find out how helpful C.I.T. financing can be. Mills and factories, from coast-to-coast, use our resources to re-equip their plants and maintain mechanical efficiency at its productive best. We invite your inquiries.

Get in touch with any of these offices for rates, terms and full information regarding C.I.T. financing facilities.

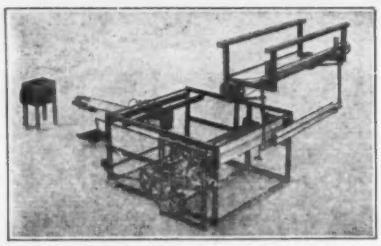
CIT "The mark of leadership"

C. I. T. CORPORATION

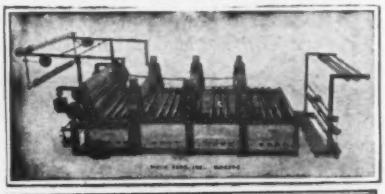
Textile Machinery and Equipment Financing

One Park Avenue	One N. La Salle St.	66 Luckie Street, N. W.	660 Market St.	416 W. 8th Street
NEW YORK	CHICAGO	ATLANTA	SAN FRANCISCO	LOS ANGELES

AFFILIATED WITH COMMERCIAL INVESTMENT TRUST INCORPORATED

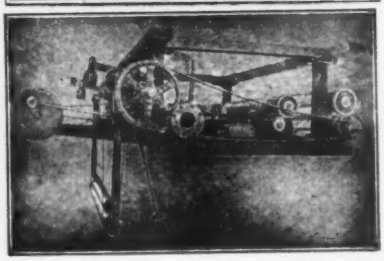


New Patented Knit Goods, De-Twisting, Splitting, Opening, Extracting and Folding Range, fitted with variable speed motor drive and foot-control. Better work with less effort.



NEW BALL BEARING CONTINUOUS OPEN WIDTH MACHINE

Pressure applied through Pneumatic Cylinders and machine fitted with Cloth Guider. For crabbing Worsteds, Serges, Rayon Mixtures, etc. Scouring for Pile Fabrics, Dyeing or Soaping for Cottons and Rayons. Individual Motor or Side Shaft Drive. Machine made of material suitable for application, stainless, wood, cast iron, etc.



New Heavy Duty All Ball Bearing Cloth Opening and Folding Machine with Vacuum Extractor. All Drives by Cut Gears or Roller Chain. Drive by Built-in Motor, for opening and extracting woolens, worsteds, plushes, cottons and rayons, and rayon blends.

BIRCH TREE.

BIRCH BROTHERS, Inc.

Harold W. Birch Clifford W. Birch Stanley W. Birch

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Dyeing, Finishing and Mill Sewing Machines

Southern Representative

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ROBISON

Rayon Yarns

Filament and Spun Rayon Yarns
dyed and twisted to your specifications.

ROBISON PROCESSING COMPANY

BOSTON, MASSACHUSETTS

New York Sales: 450 Seventh Ave.

(*Continued from page 190*)

taken to provide enough insulation, not considering the deck itself, to prevent condensation when using the required humidity on the coldest day that may be expected at the location of the building.

Roofing may be of any type manufactured by a reputable company. Flashing is of more importance than the roofing because it usually causes more trouble. All manufacturers issue standard specifications and provide surety bonds. It is usually good practice to specify a 20-yr. bond, with a 20-yr. endorsement for flashing.

The building of a textile mill is not complicated, but there are a number of problems which must be overcome. Experiments may be costly, but while ideas are continually changing, methods must be developed to keep pace. Among the factors which must be considered are first cost, maintenance cost, convenience, materials handling, employee satisfaction, and advertising value. Careful study and the principles of modern design aid in the final solution.

Shrink-Proofing Wool

(*Continued from page 103*)

tem of exhaustion to carry away by-products of the condensation action which would hinder the curing if not removed.

Standard textile units now common in the industry for curing of resins are very satisfactory for this operation. At an air temperature of 300° F., the goods should be in the curing unit for four to six minutes. Of course, there is a time-temperature reaction which must be regulated to fit the individual mill conditions for optimum resin cure.

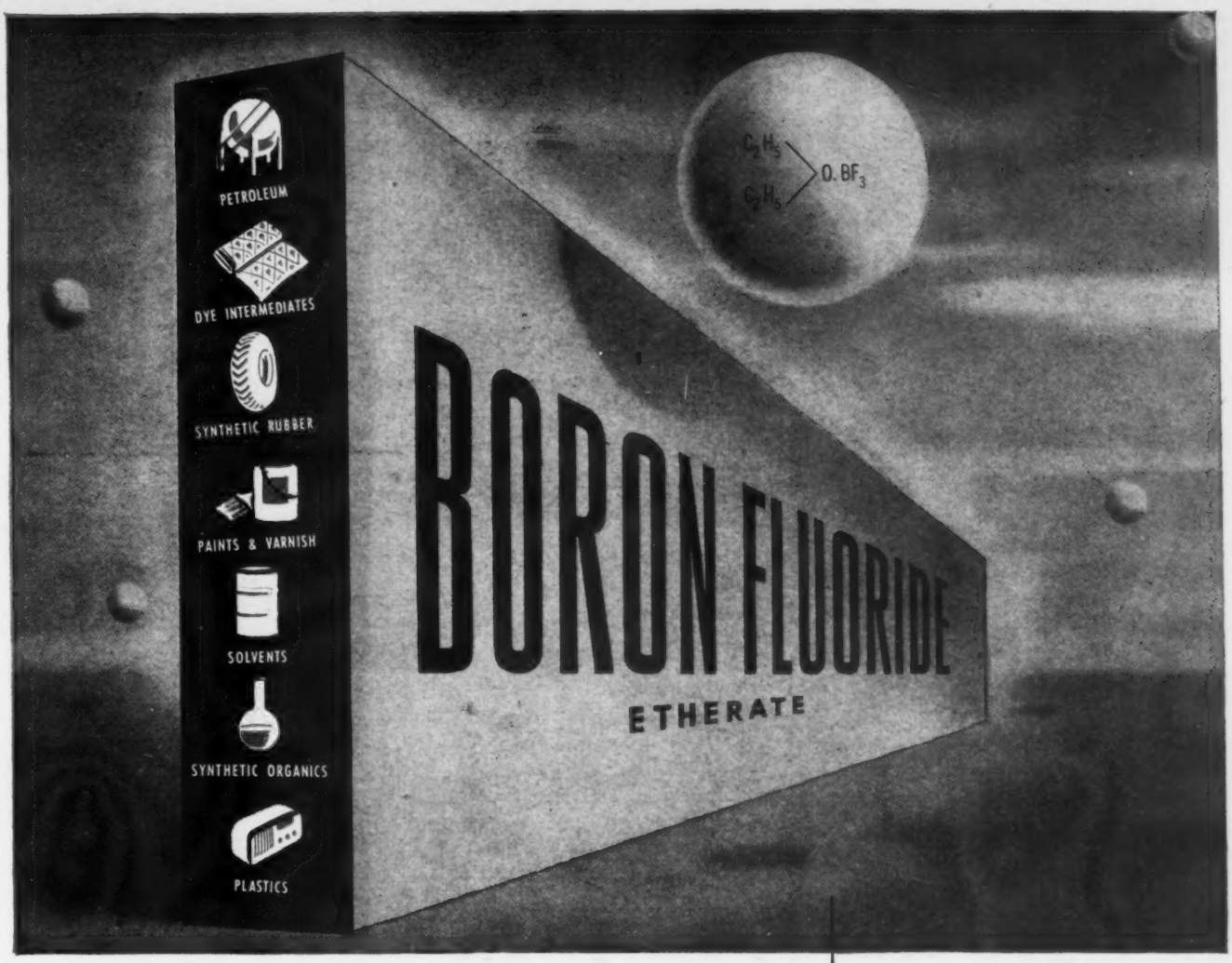
WASHING. After curing, the material is given a light washing in rope form in a regular dye beck. A dolly or a log washer is very satisfactory for this operation.

The purpose of this wash is to remove any residual products from the curing and, at the same time, to soften the "hand" of the fabric.

A 0.1% soap or 0.1% synthetic-detergent solution at a temperature of 115° to 125° F., run for fifteen minutes, is adequate for the wash. This should be followed by a clear water rinse.

Finally, the material is run in a 0.20% solution of Areotex Softener H for ten minutes at a temperature of 115° F., to impart a full, soft, and durable hand to the goods.

After drying, the fabric may be given regular finishing operations, such as decatizing, calendering, or pressing, to



Do You need this

VERSATILE NEW CATALYST?

From petroleum to plastics ...synthetic organics to solvents, Boron Fluoride Etherate is a valuable catalytic chemical with a far-reaching range of uses.

Some of the principal reactions catalyzed by this new General Chemical Company fluorine compound are listed at the right. Others are covered in reference after reference in technical literature containing extensive data on the reactions catalyzed by BF_3 as well as by its complexes with other organic molecules. Repeatedly, mention is made of its superiority to other catalysts since reactions are moderated and fewer undesirable by-products result.

Boron Fluoride Etherate is commercially available in drums. Thus, you can investigate it for immediate application in your development or production program, confident that your needs for full scale manufacturing use can be met.

For further information, write to General Chemical Company, Fluorine Division, 40 Rector Street, New York 6, N. Y An outline of your proposed application for this new catalyst will enable our technical staff to work with you toward a solution of your problem.

GENERAL CHEMICAL COMPANY
40 RECTOR STREET • NEW YORK 6, N. Y.

Sales and Technical Service Offices: Albany • Atlanta • Baltimore Birmingham • Boston • Bridgeport • Buffalo • Charlotte • Chicago Cleveland • Denver • Detroit • Houston • Kansas City • Los Angeles Minneapolis • New York • Philadelphia • Pittsburgh • Providence San Francisco • Seattle • St. Louis • Wenatchee & Yakima (Wash.)
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BASIC CHEMICALS
GENERAL CHEMICAL COMPANY
FOR AMERICAN INDUSTRY

Physical Properties

Formula:

C_2H_5 C_2H_5 O.BF_3

Molecular Weight: 141.9
Melting Point: Less than −60°C
Boiling Point: 125°C
Specific Gravity: 1.14 at 25°C
%BF_3: 47.8% min.

Some of the Principal Reactions Catalyzed by BF_3

1. Polymerization of unsaturated compounds such as olefins, diolefins, vinyl ethers, fatty oils, and terpenes. The products may be solid polymers useful as plastics or liquids as in the bodying of drying oils for paints and varnishes.

2. Condensation of aromatic nuclei with olefins and diolefins, paraffins and olefins, and aromatic nuclei or olefins with acids.

3. As a cyclizing agent for rubber.

4. As an esterification catalyst.

5. As a catalyst in the synthesis of aliphatic acids from alcohols and carbon monoxide.

6. As a promoter and dehydrating agent in the sulfonation and nitration of aromatic compounds.

An Invitation

to see our Exhibit, Booths 55, 56 at Knitting Arts Exhibition, Atlantic City, N. J., April 29th thru May 2nd.

See how you can select the right equipment for your particular "conditioning" and Twist Setting problems, whether for silk, rayon, nylon, woolens, worsteds or cotton. Make your visit profitable by getting vital facts on uniform conditioning . . . absolute automatic control of temperature, humidity and time of operation . . . elimination of condensation from top of ceiling with use of the "H-W" CONDITIONER.

"H-W" Equipment

FOR CONDITIONING AND TWIST SETTING OF WOOLEN · WORSTED SILK · RAYON · NYLON · COTTON

The Industrial Dryer Corporation
STAMFORD, CONN.

Sterling Ring Travelers

ENDS DOWN?

Don't blame the Traveler. CHECK.

Spindles plumb; Rings set;
Frames level and in alignment;
Rolls worn, cracked, cut, oily;
Clearer cloth worn and no nap;
Steel Rolls out of line and dirty;
Separators nicked or burred.

These and many other conditions can cause ends to be down. Check and be sure.

D. C. Anderson, Box 629, Cedartown, Georgia
J. R. Federline, Jr., Box 968, Spartanburg, S. C.
H. B. Cabaniss, Box 188, Monroe, No. Carolina

STERLING RING TRAVELER CO.
FALL RIVER, MASS.

obtain the type of "handle" and appearance desired.

This basic procedure may be somewhat modified for different types of fabric. Customary practice is to check characteristics and behavior of a specific wool fabric with the supplier of the resin (American Cyanamid Textile Resin Dept.) to develop particular variations of formula or process suitable for the specific fabric. Important at this stage of the planning is possible modification of the fabric itself so as to obtain a better shrinkage control. Several mills are now developing fabrics especially designed for a shrink-resisting treatment.

Effective Temperature

(*Continued from* page 111)

to locate textile mills in areas of extremely low humidity such as Colorado or Arizona, rather than in the Bolton or Flanders areas. This would be especially true with simple air-changing systems, as the low outside wet-bulb temperature obtaining in these dry areas would make possible the maintenance of lower room temperatures at a given relative humidity. In the lower humidity areas, more water would be required for humidification but the operation would benefit from lower natural temperature levels.

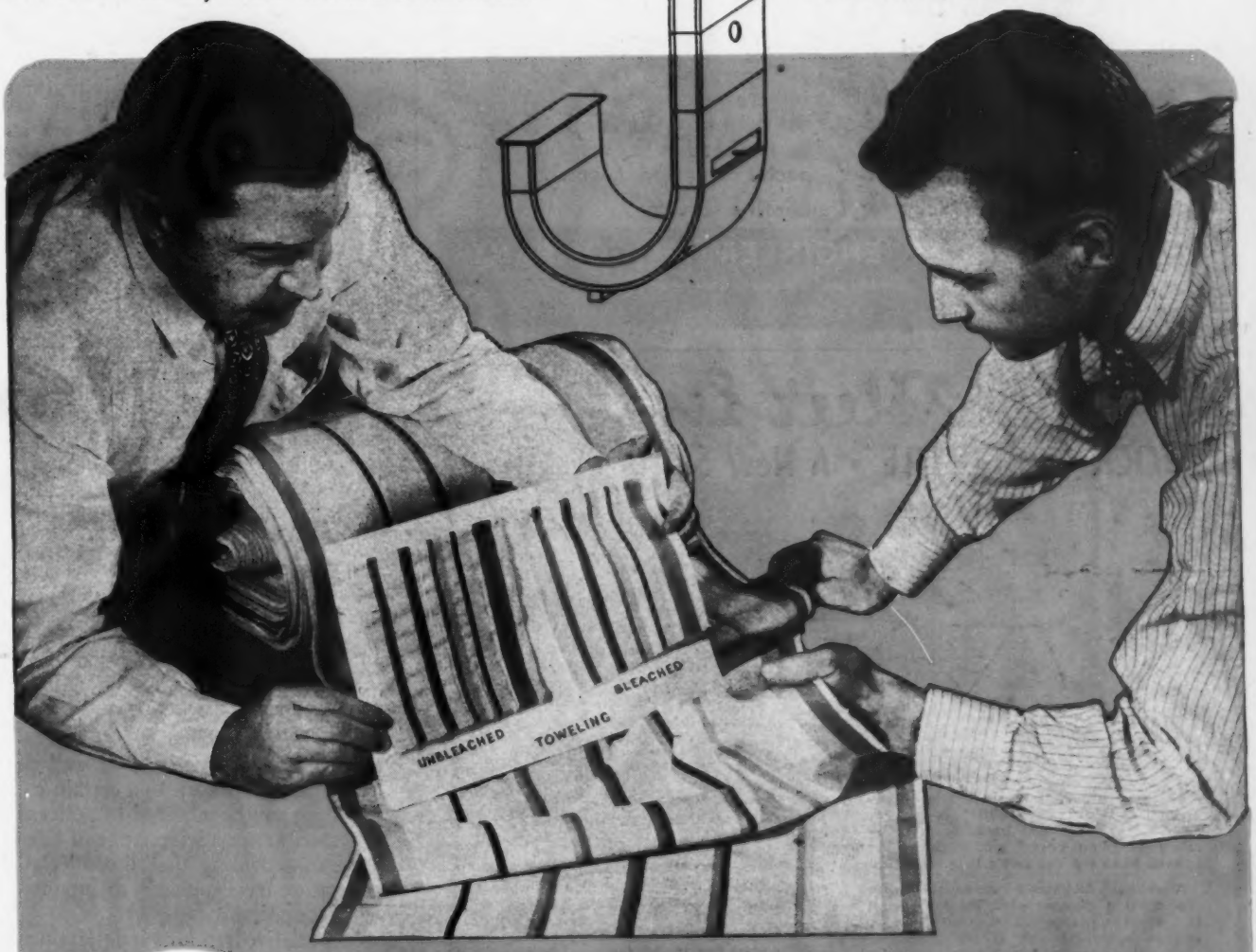
PROBLEM OUTLINED. The fundamental problem in all applications of humidifying or air conditioning in textile plants is the control of heat. Air introduced into mill areas carries off mechanically generated heat and the final heat level within the mill is established by the heat quantity emitted within the space, the amount of air circulated to absorb this heat, and the initial heat level of this air. Moisture is generally introduced to maintain the desired relative humidity. Its introduction will lower dry-bulb temperature as a result of conversion of sensible heat to latent heat in the process of evaporation, a phenomenon generally recognized and described as "evaporative cooling."

As long as outdoor air is used as the cooling source, the final condition within the mill is related to outside conditions and must be at a higher heat level. The true heat level of outdoor air is indicated by its wet-bulb temperature so that the cooling that can be anticipated with an evaporative cooling system depends on the outside wet bulb. The average maximum outside wet-bulb temperature will vary from 64° F. in Denver, Colo., to 73° F. in Portland, Me., 75° F. in Asheville, N. C., 76° F. in Greenville, S. C., 77° F. in Charlotte, N. C., and

It's RESULTS you want!

AND there is no other system or method of bleaching that will give you better results than Becco Continuous Steam Bleaching. Ask any user! He will tell you that the Becco Continuous Steam Bleaching System saves equipment because two "J" boxes do the work of nine kiers; that there is a saving up to 55 per cent in floor space; that savings in steam go as high as 75 per cent; that savings in labor and chemical costs reach 40 per cent; that Becco Hydrogen Peroxide is easy to handle being mechanically pumped to the point of use; that the finished product is of a superior quality than that bleached with any other method or chemical.

Don't take chances on your bleaching and finishing operations. Don't experiment and make unnecessary expenditures. Becco Engineers and Chemists have many years of specialized bleaching and finishing experience and it can be yours, *free*! Just drop a note requesting that Becco experts make a survey of your plant and recommend the most efficient and economical method of bleaching, considering the volume of textiles bleached. Their report will be honest and unbiased.



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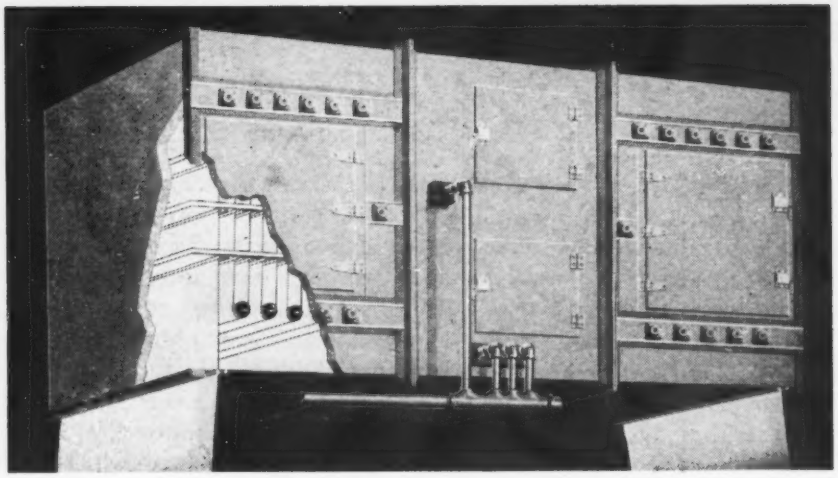

Dry more yards at Less Cost with the IHE CLOTH DRIER

The IHE Drier is direct fired with either gas or oil, requires no steam, and is fully automatic. Evaporating capacity of the size shown is 900 pounds per hour. High velocity fuel efficiency lowers operating costs and increases production. Will not burn or tender cloth. Can be furnished in the size and capacity to fit your needs.

Write today for Descriptive Circular

INDUSTRIAL HEAT ENGINEERING COMPANY

Textile Drying, Curing and Singeing Equipment

701 WOODSIDE BLDG. • GREENVILLE, SOUTH CAROLINA

The Fleet Line

STOCK DYE KETTLE • A New Safety Feature

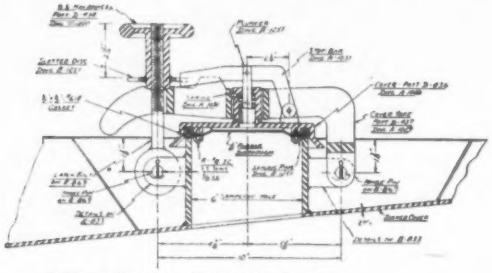

Diagram of Riggs & Lombard Safety Sampling Cover

Always outstanding for its efficiency, the Fleet Line Stock Dye Kettle* is now an even better investment because of a new safety sampling cover* which cannot be opened while the dye kettle is in operation.

A rubber diaphragm under the cover pushes up a plunger when the machine is in use. The plunger raises a stop bar to engage a slotted disc in the handwheel shaft, thus locking the cover opening wheel. (See the illustration above). This device is standard equipment on all new stock dye kettles and may be added to machines now in place.

OTHER FEATURES

1. A panel board with temperature, pressure and depth indicators.
2. Will dye wool, cotton and rayon.
3. Main kettle and expansion tank in one unit.
4. Inside of kettle highly polished stainless steel plate.
5. Tilting or removable cover.
6. Unloading by electric or air hoist.
7. Kettle above floor insulated.
8. Pump submerged in dye liquor at all times. Driven by easily accessible motor. Delivers over stock. (No agitation of latter).

* Reg. U.S. Pat. Off.

Patents #2410214, 2275818 and 1813784

Circular on request

RIGGS AND LOMBARD

FOOT OF SUFFOLK ST., INCORPORATED LOWELL, MASS.

80° F. in Charleston, S. C., or Savannah, Ga. These are "design" wet-bulb temperatures, i. e., wet-bulb temperatures that are not exceeded more than 5% of the total hours during the summer months. This means that for any given load condition, air quantity, and inside relative humidity the room temperature that could be maintained in a mill in Denver would be 16° F. below that of one in Charleston or Savannah. Conversely, for the same mill condition, an installation in Denver would require only a fraction of the air quantity needed for a like installation in hot country.

If an artificial cooling source, such as well water or mechanical refrigeration, is used to control the wet-bulb temperature of the conditioned air, operations obviously cease to be dependent upon outside wet-bulb temperature and the mill condition to be maintained may be selected as dictated by economic and engineering considerations without the limitation imposed by climate.

PROCESS CONDITIONS. Mill relative humidity is fixed by the type of fiber being processed and the particular processes themselves. This relative humidity varies from 50 to 90%. In most cases, satisfactory working conditions for any particular fiber will obtain within a humidity range of 5 to 10%, provided that whatever humidity is selected is maintained with a variation of plus or minus 2% and the process adjusted to the selected humidity condition. The maintenance of a constant humidity is more important than the set level of relative humidity.

Dry-bulb temperature may also affect the process. Size formulas are somewhat affected by operating temperature, as is also the pliability and other physical characteristics of certain synthetic fibers now widely used. Operation of modern high-speed looms, knitting and tricot machines can be adversely affected by changes in temperature; but these machines, as well as size formulas and even to a certain extent fibers, can be adjusted to perform satisfactorily over a wide range of temperatures, providing that the selected temperature level is closely maintained during operation.

Since relative humidity is determined by the process and fiber used, and as the temperature level of the process is of far less importance than uniform maintenance of the selected condition, there is every reason to select the design temperature for its effect upon the comfort and efficiency of the textile workers.

Comfort depends on relative humidity as well as temperature; so, since the humidity is fixed by the proc-

DEVELOP YOUR COLORS WITH SOLVAY SODIUM NITRITE (U.S.P.)

The secret of quality azo dyes

In azo dyes, a sure way to develop the finest colors is to specify U.S.P. *quality* SOLVAY Sodium Nitrite.

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SODIUM
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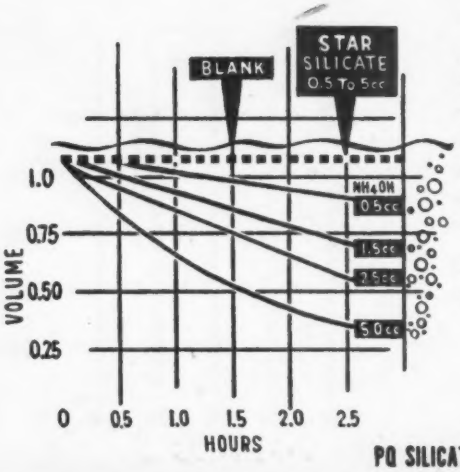
Specify Quality—Specify SOLVAY

how star silicate reacts in peroxide bleach baths

Star holds on to the molecule of oxygen until its release is needed for bleaching. Hence, as shown in the graph, when no oxidizable material is present Star Brand prevents waste of peroxide. Silicates with lower purity and quality standards allow the oxygen to come off too fast and much is dissipated.

Star is not just a filtered silicate. It's free of unstable colloidal matter which might be thrown down or precipitated as a floc. In continuous bleach systems especially, troublesome scale which forms with impure silicates is avoided by using Star.

Send for a sample of Star Silicate and compare.



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WACO Dead Stop End Point TITRATOR

For Moisture Determinations in Minutes . . . Using Karl Fischer Reagent

MOISTURE determinations are made in a few MINUTES using the WACO. The Karl Fischer Reagent method is a CHEMICAL technic for the determination of water content . . . eliminating oven drying!

War proven . . . in chemical, food and ammunition plant laboratories . . . for on-the-spot speedy control of water content and determination of organic compounds. Application of the method to a great variety of products is possible . . . indicated by the following partial list of users:

American Can Co.	Nuodex Products
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Cache Valley Dairy Assn.	Schweitzer Paper Co.
Calco Chemical Co. (2)	Standard Oil Co. (5)
Cannon Mills	U. S. Dept. Agriculture (2)
Celanese Corp.	U. S. Dept. Interior
Corn Products Refining Co. (2)	U. S. Naval Powder Factory
Dow Chemical Co.	Western Condensing Co.
E. I. du Pont de Nemours	Winthrop Chemical Co. (2)
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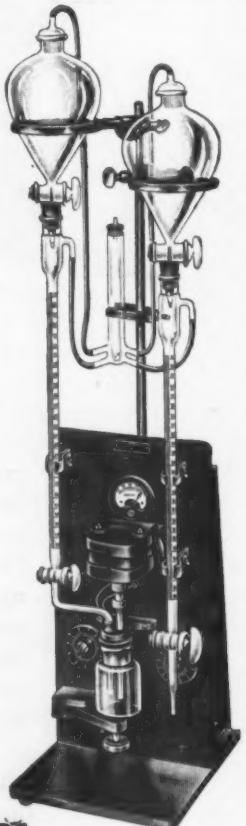
The WACO shows a sharp and reproducible end point . . . the needle of the microammeter sweeps across the entire scale. Technic is simple and electronic amplification is not necessary. It is a sturdy equipment embodying flexibility for use with many materials. Costs but $155.00



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ess, the dry-bulb temperature for the same comfort condition must vary for each humidity.

To eliminate the necessity of discussing the different dry-bulb temperatures for each humidity used in textile processes, comfort can be discussed in terms of "effective temperature" which combines in one index the effect of relative humidity and temperature.

EFFECTIVE TEMPERATURE. The index of "effective temperature" has been established largely through the research of the American Society of Heating & Ventilating Engineers and is generally accepted and well understood by heating and ventilating engineers. A tabulation of the various combinations of temperature and humidity which give an effective temperature of 75°, 80° 85°, and 90° F. is given in Table I. The effective temperature scale denotes the degree of warmth perceived on exposure to different combinations of temperature, humidity, and air movement. It was determined by trained subjects who compared the relative warmth of various air conditions in two adjoining rooms, by passing back and forth from one room to the other. Effective temperature is determined by wet and dry bulb observations as well as by reference to effective temperature charts or tables, since there is no instrument which will measure it directly.

The numerical value of the basic effective-temperature index is fixed by the temperature of slowly moving (15 to 25 ft. per min.) air and with negligible radiation to or from surrounding objects. Thus, any air condition has an effective temperature of 70° F. when it induces a sensation of warmth equivalent to that experienced in slowly moving air at 70° F. and saturated with moisture.

Because the subjects in determining this index compared not the relative comfort, but rather the relative warmth or cold of various air conditions, effective temperature is not in itself an index of comfort as it is often assumed to be. However, effective temperature appears to be a fair index of comfort within the relative-humidity range of 30 to 60%. At normal room temperature, increased air movement results in lowering the effective temperature. This effect decreases as the temperature rises and above 100° F. ET increased velocity raises rather than lowers effective temperature, since it increases the rate of heat transfer to the body. Experiments show that most of the physiological responses of the human body plotted against effective temperature give identical curves for different relative humidities. When these references are plotted against

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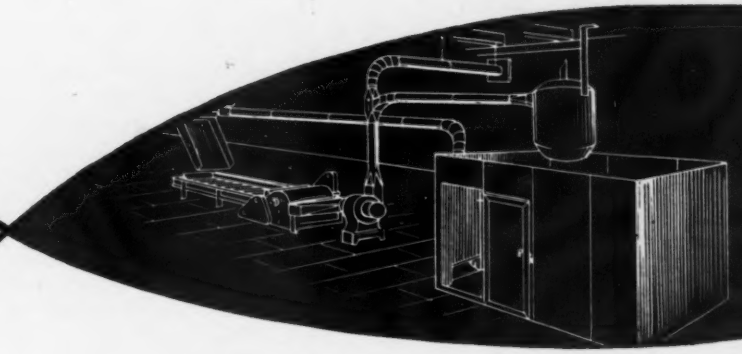
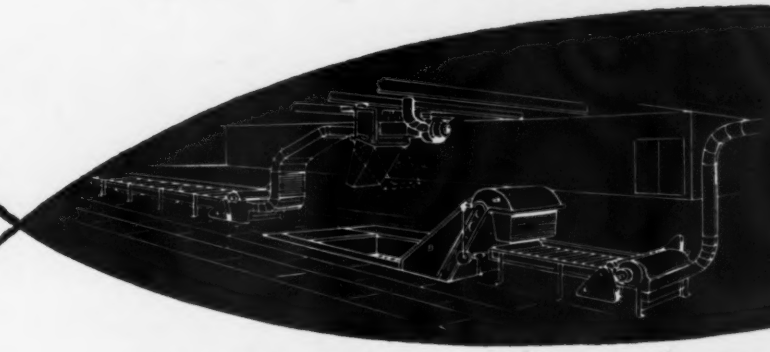


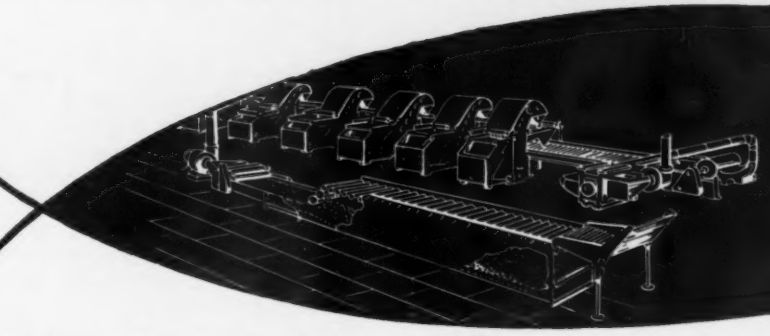
Simple Method. One Proctor Super Picker. First blending is conveyed to bin, from which it is picked up and distributed over feed table of Super Picker, where it receives secondary blend and then conveyed to card room.

STEP UP PRODUCTION . . .



Cleveland Method. After first run through Super Picker, blend is distributed over a pit feed and fed to second Super Picker, from which it is conveyed to card room.

IMPROVE BLENDING . . .



Fully Automatic System employs a number of automatic feeds with calibrated scale mechanisms, each laying one kind of stock on feed table of first Super Picker. Blend passes through re-blending box to wide Super Picker and then to card room.

In plants where Proctor individually designed blending systems, similar to those illustrated above, are in daily operation, management report truly amazing figures. These plants report making better blends with more certainty of uniform mixing and at labor savings of 40% to 70% over manual blending. It stands to reason that carefully controlled mechanical blending removes even the smallest variance that is bound to occur when the blend is laid manually. When you consider the dependable uniformity of blend and the tremendous savings in manpower made possible by these systems, you can see that the initial investment pays for itself in a very short time. These blending systems can be semi or fully automatic, depending upon individual requirements. The systems are entirely flexible and can be arranged to meet plant layout. If blending is a part of your plant operation, investigate the possibilities of the Proctor system suited to your needs. Let one of our sales engineers discuss your problem with you and then make recommendations. Write today.

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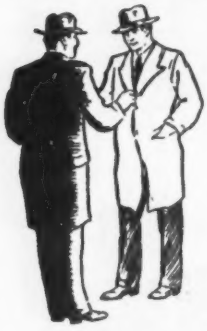

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wet-bulb temperature, there is a significant separation at each humidity; when plotted against dry-bulb temperature the separation is even greater. This is strong evidence that effective temperature is the best and simplest criterion by which to gage the effect of various atmospheric conditions on the human body.

WORK AND TEMPERATURE. A series of tests made in 1938 by the American Society of Heating & Ventilating Engineers should prove most significant to those interested in textile-mill air conditioning. In this, the subjects were engaged in formalized light work, which required attentiveness. It was probably a close approximation of most of the work performed in operating textile-mill machinery. The tests were run 4 hr., presumably on the assumption that an 8-hr. shift would be broken by an hour's rest for lunch. An hour's rest in normal temperatures will bring approximately to normal body temperature or other physiological reactions which have been upset by high effective temperatures. But it is normal procedure for the textile mill worker to remain on duty for eight hours, eating his lunch at his machine; and, as the effect of high effective temperatures is progressive, the data published for these experiments has to be extrapolated.

For 4-hr. exposure, the body temperature of the average subject started to rise at 79° F. ET; at 79° F. ET the maximum rise recorded was 0.5°. The pulse rate started to rise at 75° F. ET. The systolic blood pressure commenced to rise and the diastolic to fall at 85.5° F. ET. At 85° F. ET, the average body temperature had risen 0.4°, the maximum 1.2°. At 90° F. ET, the average body temperature rose 1.25°, the maximum 2.0°. Other physiological reactions showed about the same rate of change. Extrapolating the curves for an 8-hr. exposure, we would expect the body temperature rise as shown in Table II. (page 264).

The degree of warmth or comfort observed was expressed as "comfortable," "very warm," and "very hot." The very-warm rating was made to include observations of decidedly warm but still bearable conditions, while very hot denoted conditions which were more or less unbearable. Most of the subjects observed 80° F. ET as warm, but a few found it comfortable; 85° F. ET was equally divided between very hot and very warm. At 90° F. ET, virtually all subjects found it very hot.

A thorough study of the data resulting from these investigations warrants the conclusion that the effective temperature in a textile mill should not exceed 80° F. with an 8-hr. exposure for

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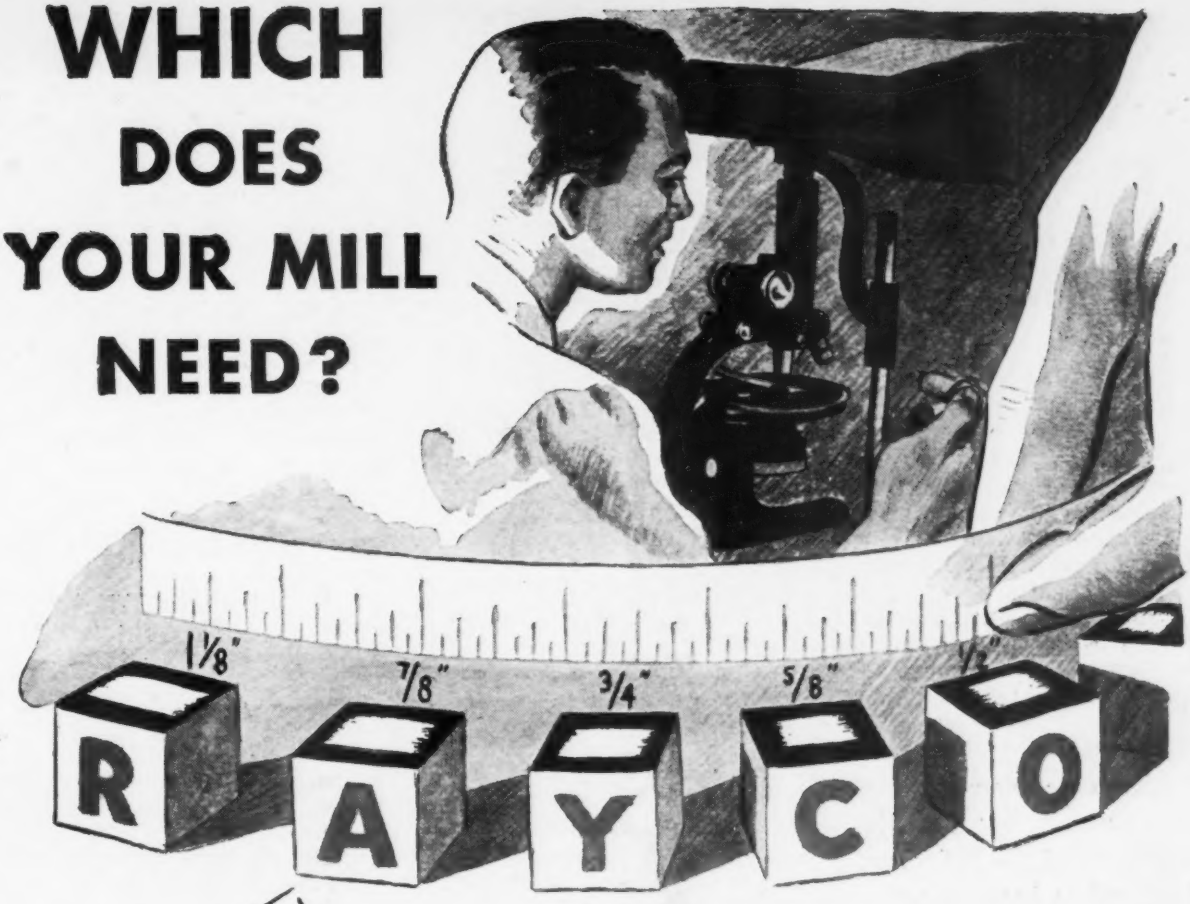

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maximum efficiency of the workers. Temperatures above 85° F. ET, while not injurious to the health of the average worker in good physical condition, may bring about many undesirable physiological reactions to those whose resistance is lowered.

The maximum of 80° F. ET should probably be modified for northern New England and Canada or other areas where the maximum design outside wet-bulb is 72° F. or below. For operations in Maine or Canada or similar climatic zones, it is believed that 75° to 77° F. ET should not be exceeded. The cost of maintaining an effective temperature of 75° to 77° F. in a mill in Maine would not be any more than the cost of maintaining an effective temperature of 80° F. in the Piedmont section of the Carolinas.

CONDITIONING METHODS. There are five different methods in common use today for humidification of textile mills:

1. The first of these is the use of atomizers introducing moisture directly to the humidified space, with dependence upon natural ventilation for air change and temperature control.

2. The second involves the use of atomizers with fan-powered air-changing units located in the windows to introduce dry outside air either directly into the space or through distribution ducts.

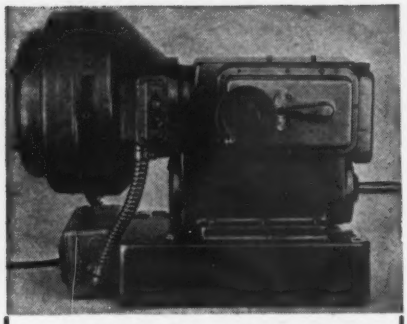
3. The third employs units to introduce air which carries in suspension droplets of unvaporized water in excess of the amount required to saturate the air at entering conditions. This air is properly referred to as "supersaturated." Thermodynamically this system is similar to system No. 5.

4. The fourth maintains humidity purely by the introduction of dry but saturated air (i.e., all water in vapor form) from an air-washing chamber to the space to be conditioned.

5. The fifth achieves the desired room humidity by the introduction of a reduced quantity of dry saturated air with supplementation of humidity by direct atomization of moisture within the space.

Well-water or water cooled by mechanical means can be employed readily for artificial cooling with either of the last two systems of humidification described. Without the use of a coolant, at any given outside wet-bulb temperature and for the same inside relative humidity, equal average inside temperatures will theoretically be held by any of these five systems, providing that they introduce the same quantity of outside air.

From the practical point of view, it is problematical that the simple atomizer system will ever achieve this theo-



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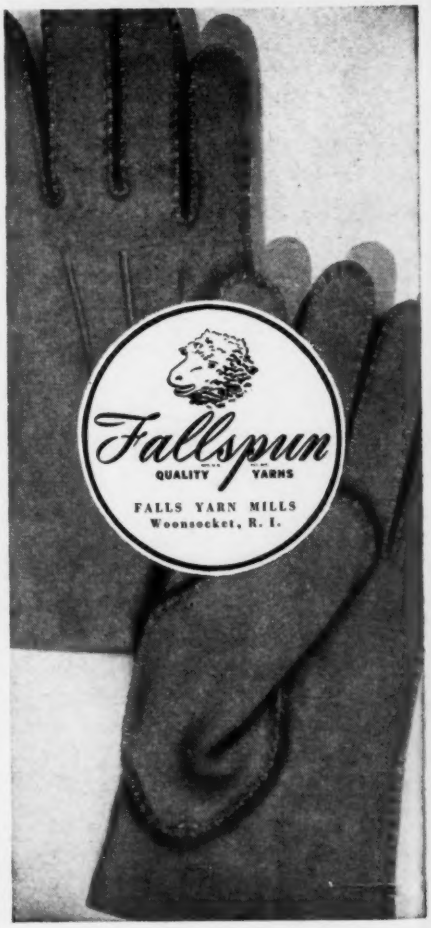

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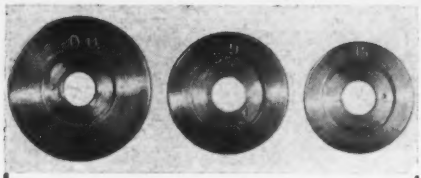

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retical condition, for it is solely dependent upon natural ventilation for the control of temperature and is therefore subject to the vagaries of the wind and manual control of window opening. Furthermore, it is obviously impossible to maintain the same temperature and relative humidity in the center of a room as near windows.

With the system employing atomizers and fan-type air-changing units, the supply of outside air in sufficient quantity to afford maximum practical cooling can be assured and maintained. However, the introduction of large quantities of outside air at isolated points along the walls makes the maintenance of relative humidity within the desired tolerance impossible. Addition of distribution ducts with properly spaced outlets to such units will improve the regulation of relative humidity.

With the unit system using dry outside air and atomizers, it is possible and practical under many circumstances to introduce more air than can be introduced from systems using saturated air, so that it is sometimes possible to maintain lower mill conditions with this system than with conventional central-station, air-washing systems using outside air.

Units or central stations depending solely upon the introduction of saturated air from washing chambers and with properly designed duct systems are capable of maintaining relative humidity with a variation of plus or minus 2% and, except as modified above, will produce the practical maximum of evaporative cooling using outside air. Units or central stations introducing reduced quantities of saturated air, properly distributed and with supplementary humidification from atomizers in the room, will also maintain relative humidity with a variation of plus or minus 2% throughout the room; but the reduced air quantity will result in higher room temperatures where dependence is solely on outside air as a cooling source.

CONDITIONS LIMITED. In practice, the inside conditions which can be anticipated with the various systems as outlined above using outside air only, with no artificial cooling (based on an outside wet-bulb temperature of 78° F.) are shown in Table III (page 264).

With an outside wet-bulb temperature of 76° F. and when maintaining 80% relative humidity in the conditioned space, systems No. 2 or No. 4 can afford an internal effective temperature of 80° F. without the use of an artificial coolant. For an outside wet-bulb temperature of 78° F., the room humidity would have to be raised

(*Continued on page 264*)

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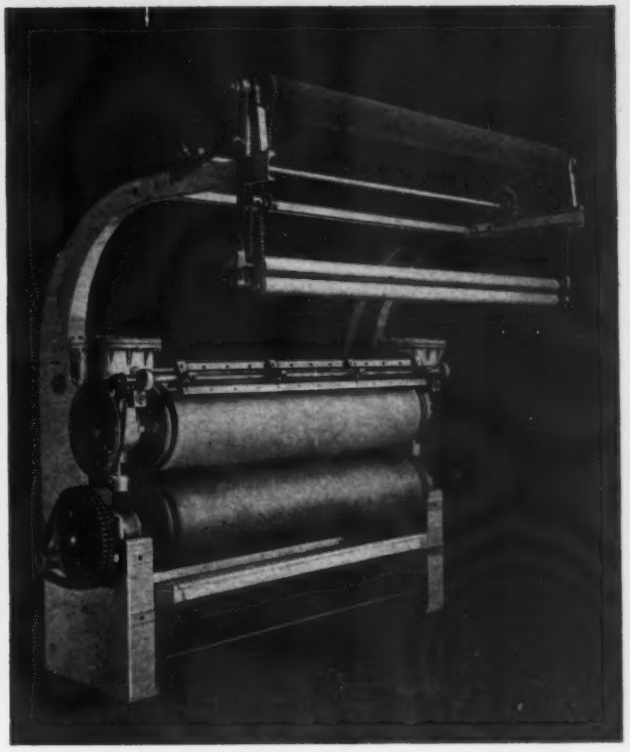

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It is adaptable to any woven fabric, either flat or pile type, on cottons, rayons, woolens, worsteds and blended or manipulated fabrics. It requires less horsepower to operate than any other extraction equipment. For example, 5 H.P. against 20 H.P. for the average vacuum extractor. In keeping with modern machine design, it is streamlined, with an eye to appearance as well as utility. On comparative test with other methods of extraction, that is, vacuum extractors or centrifugals, it has shown notable advantages. For example:

On cotton plushes at relatively high speed of cloth travel, it has shown extractions of 48 to 52 per cent, figured on the bone-dry basis. These figures are 30 per cent better extraction than shown by a vacuum extractor running at the same speeds. Furthermore, it has shown no more "pile flattening" on plushes than the vacuum extractor or the centrifugal type.

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MANUFACTURERS' BULLETINS

***READERS** may secure copies of literature reviewed on these pages by using the post cards below. Fill out **COMPLETELY** one coupon for each piece wanted.*

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1. "The Dyeng and Lanaset Resin Treating of Wool Hosiery" is the title of Technical Bulletin No. 783 published by Calco Chemical Div., American Cyanamid Co. The bulletin is designed to provide the dyer with answers to some of the problems created by Lanaset-resin-treated wool hosiery.

2. Industrial opportunities of Jacksonville, Fla. are analyzed in a booklet published by the Jacksonville Chamber of Commerce. Labor, transportation, raw materials, markets, power and fuel, and other important commercial and industrial factors are covered.

3. Electronic variable-speed drives for industrial machinery are described and illustrated in a 4-page folder, Bulletin 178, issued by the Electron Equipment Corp. The folder describes the electronic conversion of alternating current to direct current and use of the equipment to achieve variable-speed ranges up to 100 to 1.

4. Automatic controls of pressure, temperature, and flow of gas, oil, air, water, steam, refrigerants, and other fluids are described in Catalog 52C issued by General Controls Co. The catalog gives complete engineering data and operating pressures of the units described.

5. Outdoor, oil circuit breakers in capacities from 15,000 to 46,000 volts and in frame-mounted fabricated, three-pole types are described in Bulletin 71B6421 issued by Allis-Chalmers Mfg. Co. The bulletin outlines dimensions with weights and oil volumes for reference.

6. "Organic Chlorine Compounds," a booklet published by Carbide and Carbon Chemicals Corp., presents the latest data on 12 chlorinated compounds industrially important as solvents, fumigants, and chemical intermediates. Information is given on the properties and uses, specifications, solubilities, comparative stability to reducing and oxidising agents, and constant-boiling mixtures.

7. Turbine-maintenance information is given in Booklet B-3747 issued by Westinghouse Electric Corp. The handbook explains the theory of turbine operation; explains how a steam turbine is installed; gives directions for piping, joint sealing, and lubricating; outlines inspection features; and discusses repairs and adjustment.

8. Color dynamics and the scientific utilization of the energy in color to promote efficiency in industry is the subject of a 32-page booklet published by Pittsburgh Plate Glass Co. Individual sections are devoted to the use of color on machinery and equipment; on walls and ceilings; and on floors, aisles, and mobile equipment with emphasis on color for safety. Each section is illustrated with full-color applications. A special section contains simplified and practical material specifications for industrial painting.

9. Automatic temperature control systems are described and explained in Educational Bulletin No. 5, published by Wheelco Instruments Co. The charts, tables, and diagrams explain measurement and automatic control and the selection of proper control systems for process applications. Thermocouples, their placement, hints governing their use, and selection of thermocouple-protecting tubes are also covered.

10. Textile chemicals and dyestuffs are described in a group of circulars published by General Dyestuff Corp. Materials covered in the circulars are: Fast Scarlet Salt RN, Emulphor AG Oil Soluble, Emulphor E L A, Katigen Tan K, Indanthrene Printing Brown RD Paste Fine, Soromine B S A, Soromine F W Paste, Prestabit Oil V New, Nuva B, and Colloresine HV, MV, LV.

11. "How to Buy or Lease Surplus Real Estate" is the title of a pamphlet published by War Assets Administration. The pamphlet is designed to guide business, political subdivisions, institutions, banks, and other interested organizations and individuals in the steps necessary to acquire government-owned surplus real property. It lists various types of real estate that are available, gives concise information as to the data that should be submitted in acquisition proposals, and presents an overall summary of basic information on rules and regulations covering dispositions.

12. Photocopying equipment for use in reproducing all types of printed matter, type matter, and photographs is described and illustrated in a 20-page booklet published by American Photocopy Equipment Co.

13. "Fire Prevention" is the title of a 4-page folder published by B. F. Good-

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rich Co. The folder reviews briefly the tremendous fire losses in the United States during 1946, pointing out a few simple prevention measures as well as giving brief instructions on what to do if a fire is discovered, and graphically illustrates the principal steps to take in case of fire. It pictorially describes various types of fire extinguishers in the plants and how they should be used.

14. Electric lift trucks which are 100% electric drive, lift, and brake, and are designed to be operated with the handle vertical or in any other position, are described and illustrated in an 8-page bulletin published by Lewis-Shepard Products, Inc.

15. Magnetic crane controls for handling any type of load are described in a 20-page booklet announced by Westinghouse Electric Corp. The booklet contains descriptive information, wiring diagrams, performance curves, and an application guide to aid in selecting the type of control best suited to any application.

16. "DC Silicone Catalog," third edition, has been published by Dow Corning Corp. The catalog contains information on silicone compounds, greases, fluids, varnishes, resins, and silastic.

17. Diesel engines is the subject of a 24-page booklet, Form 9369, published by Caterpillar Tractor Co. The illustrated publication describes and pictures many applications of diesel engines providing industrial power, electricity, and marine power.

18. Color matching under controlled lighting conditions is described in a 4-page folder, Bulletin No. 115, published by Macbeth Corp. The bulletin illustrates that colors matched under one type of illumination may very likely be a mismatch under another quality of illumination.

19. Insulating varnishes are described and cataloged and technical and application data are given in a 40-page booklet published by General Electric Corp. The booklet includes specifications, electrical properties, film properties, cure and aging, chemical properties, and baking and air-drying cycles of each type. Thirty-six grades are described.

20. "A Better Way to Finance Your Business" is the subject of a 36-page booklet published by Commercial Credit Co. The booklet gives dollars-and-cents analyses of the cost of money under the plan described.

21. Air conditioning for tricot knitting mills is described in a 4-page folder published by Air-Perme-Ator Manufacturing Co. The folder discusses humidification fundamentals for tricot knitting and describes the features of the Air-Perme-Ator system.

22. Level dyeing of wool, and the deterioration of the handle and strength of the stock resulting from the removal of the natural grease content is the subject of a technical folder published by Textile Chemical Div., Dexter Chemical Corp. The folder describes Maxitol No. 10 and its uses as a protective agent and dyeing oil, and presents information regarding properties and reaction, its uses, the formulae for its various uses, and the chemical methods for its analysis.

23. "The Magic Door" is the title of a 12-page catalog published by Stanley Works. The catalog describes the various types of automatically opened doors for business and industrial uses, gives examples of the various applications, and shows typical installations.

24. Self-sealed ball bearings are described in a 4-page folder published by New Department Div., General Motors Corp. The folder gives information on the design features of the bearings and describes the method for revitalizing bearing lubricant.

25. "Design for Progress" is the title of a 4-page house organ published by The James F. Lincoln Arc Welding Foundation. The 4-page folder is devoted to the *Design for Progress* contest to advance welding design.

26. Rubber gloves for industrial use are described in Catalog Section 9035 published by B. F. Goodrich Co. The catalog describes each glove in the line according to size, length, and thickness, and also covers the company's plastic-treated and plastic-sheet type industrial aprons.

27. Series 700 Flowrator instrument is described and a complete set of certified dimensions covering every available combination of the instrument are exhibited in Catalog Section 27-A, published by Fischer & Porter Co. Panel-mounting arrangements, alarm attachments, electrical transmitters, pneumatic transmitters, and recorder-controller accessories are included in the catalog.

28. Grid blast coils are described in a new catalog issued by D. J. Murray Manufacturing Co. Diagrams of installations, performance charts, temperature differential conversion tables, physical data, and specifications are included in the catalog.

29. Miniature ball bearings designed for precision instruments and mechanisms are described and catalogued in a 4-page bulletin issued by Miniature Precision Bearings, Inc. Radial bearings, superlight radial bearings, pivot bearings, angular contact, and thrust bearings are described; complete specifications are given, including load ratings recommended for average typical requirements.

30. Water-temperature control is the subject of a 16-page catalog published by Powers Regulator Co. Several types of regulators and valves are shown for all types of hot water heaters, 3-way mixing valves for two-temperature hot-water systems, industrial processes, laboratories, steam-and-water mixers, and various thermostatic water-mixing valves.

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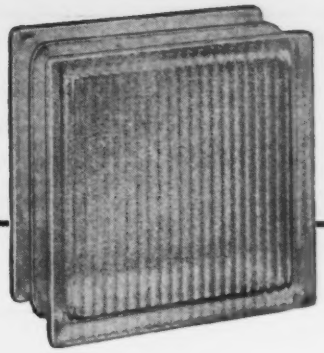

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PC GLASS BLOCKS

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These are some of the ways in which PC Glass Blocks step up mill efficiency. They also reduce operating costs, by cutting artificial lighting costs, heating costs, the costs of maintenance labor and supplies.

Plan for greater efficiency in your present mill or in new projects with PC Glass Blocks. Make sure you have full information. Send for our current book, which describes and illustrates all sorts of PC Glass Block installations in mills and industrial plants. Pittsburgh Corning Corporation, 632 Duquesne Way, Pittsburgh 22, Pa.

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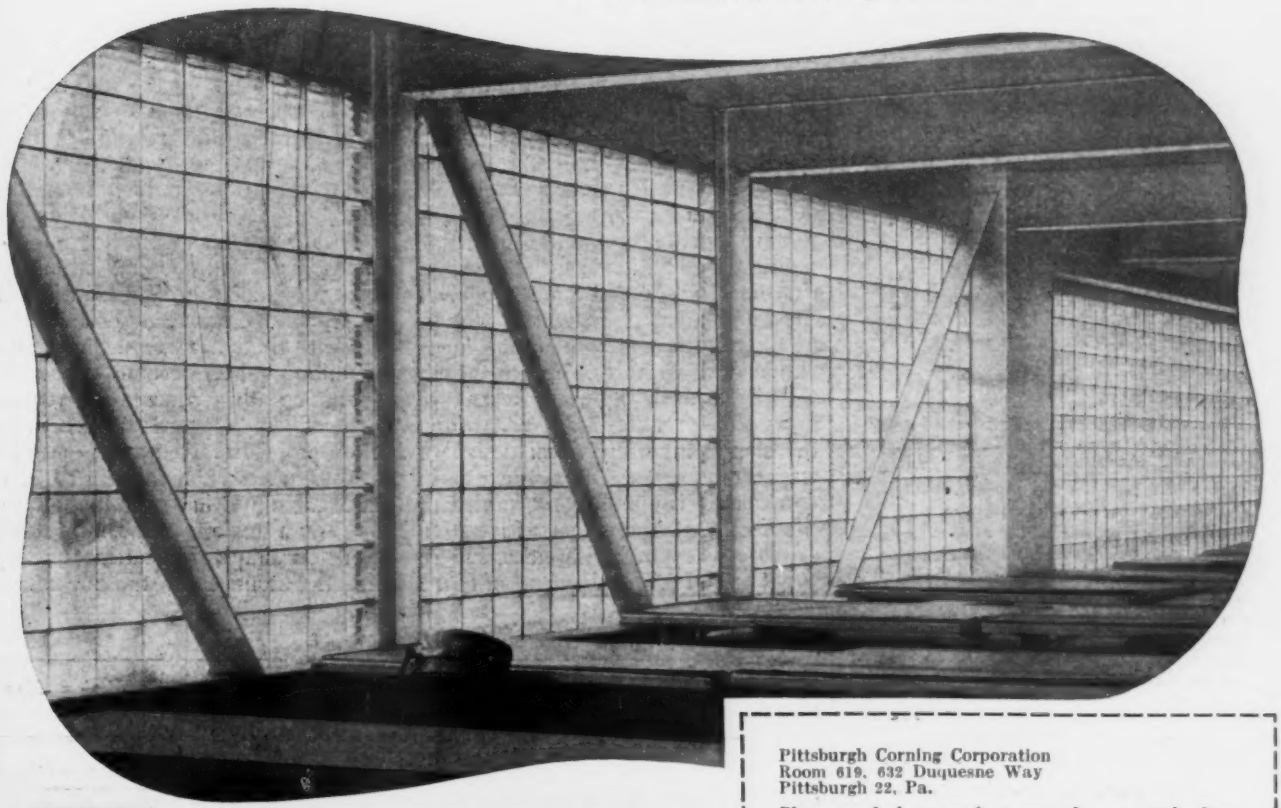

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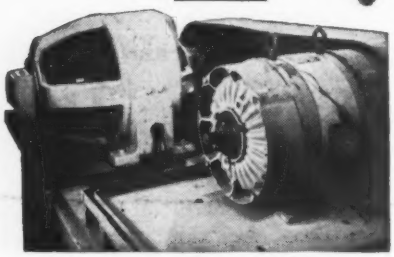
Silicone News

DC SILICONES

Lubricated once with DC 44 Grease...

Bearings Run 3820 Hours at 250° F.



DC 44 Silicone Grease is tested in bearings of DC Silicone insulated motors overloaded to bring bearing temperatures up to 125° C.

DC Silicone Greases, like other Dow Corning Silicone Products, permit operation at temperatures far above and below the limits of comparable organic materials. The Silicone Greases were, in fact, developed to solve a high temperature problem of our own making.

We had developed and were testing DC Silicone Insulation for electric motors. We operated test motors at 200° to 310° C. and found that Silicone Insulation could take such temperatures for thousands of hours. We knew, however, that there would be almost no immediate market for this new class of electrical insulation unless a grease having comparable heat stability was developed.

Then one of our research groups developed DC 44 and DC 33. That was over two years ago. DC Silicone Greases have since been extensively tested and widely used.

DC 44 has proved to be serviceable from −40° to 350° F. and at speeds up to 20,000 r.p.m. It is also characterized by very low volatility, freedom from gumming, bleeding of less than 2% after 16 hours at 110° C. (230° F.), and weight loss of only 3.3% after 40 hours at 175° C. (347° F.).

These properties are most desirable in a grease for permanently sealed bearings. DC 44 is now used for that purpose.

DC 33 has proved to be a very useful grease over the temperature span covered in aircraft operations. It is serviceable at temperatures as low as −70° F. and still has better high temperature performance than special high temperature petroleum greases. Both of these DC Silicone Greases are described in data sheet No. X 7-4.

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Dow Corning
FIRST IN SILICONES

(*Continued from page 258*)

to 90% r.h. to achieve the same effective temperature of 80° F. Therefore, with a maximum design wet-bulb temperature of 76° F., refrigeration will be required for the maintenance of 80° F. ET at any relative humidity below 80%; and similarly at 78° F. wet-bulb, refrigeration will be required for any relative humidity below 90% if 80° F. ET is to be achieved. Raising the limit of internal effective temperature will increase the range of performance of systems without refrigeration—for example, at 85° F. ET refrigeration will be required only for maintenance of relative humidities below 67% at 78° F. wet-bulb outside; or for humidities below 57% at 76° F. wet-bulb—but these higher effective temperatures are considered undesirable.

VALUE OF A COOLANT. Obviously the addition of sufficient quantity of an artificial coolant at the proper temperature to either system No. 4 or No. 5 can result in the maintenance of any desired temperature in the conditioned area. Since system No. 4 depends entirely upon the introduction of dry but saturated air for the maintenance of humidity, the air quantity is fixed by the temperature rise which will result in the final desired room condition. With system No. 5, a materially reduced air quantity may be employed because a higher temperature rise is permissible between the saturation temperature of the entering air and the room condition since any resulting deficiency in humidity is made up by the introduction of atomized moisture within the conditioned area. Of course, if systems Nos. 4 and 5 are to achieve the same room condition, it will be necessary to saturate the air at a lower temperature with No. 5 since the air will rise through the wider heat range in absorbing mill load. However, from the standpoint of practical design of refrigeration systems, this reduction in temperature is unimportant in view of the fact that the same refrigeration capacity is required with either system No. 4 or No. 5. Employment of No. 5

TABLE II. Body Temperature Rise for 8-Hr. Exposure

Degrees ET	Average Rise of Body Temperature in Degrees F.	Maximum Rise of Body Temperature in Degrees F.
80°	0.30°	0.75°
85°	0.75°	1.20°
90°	2.00°	2.00°

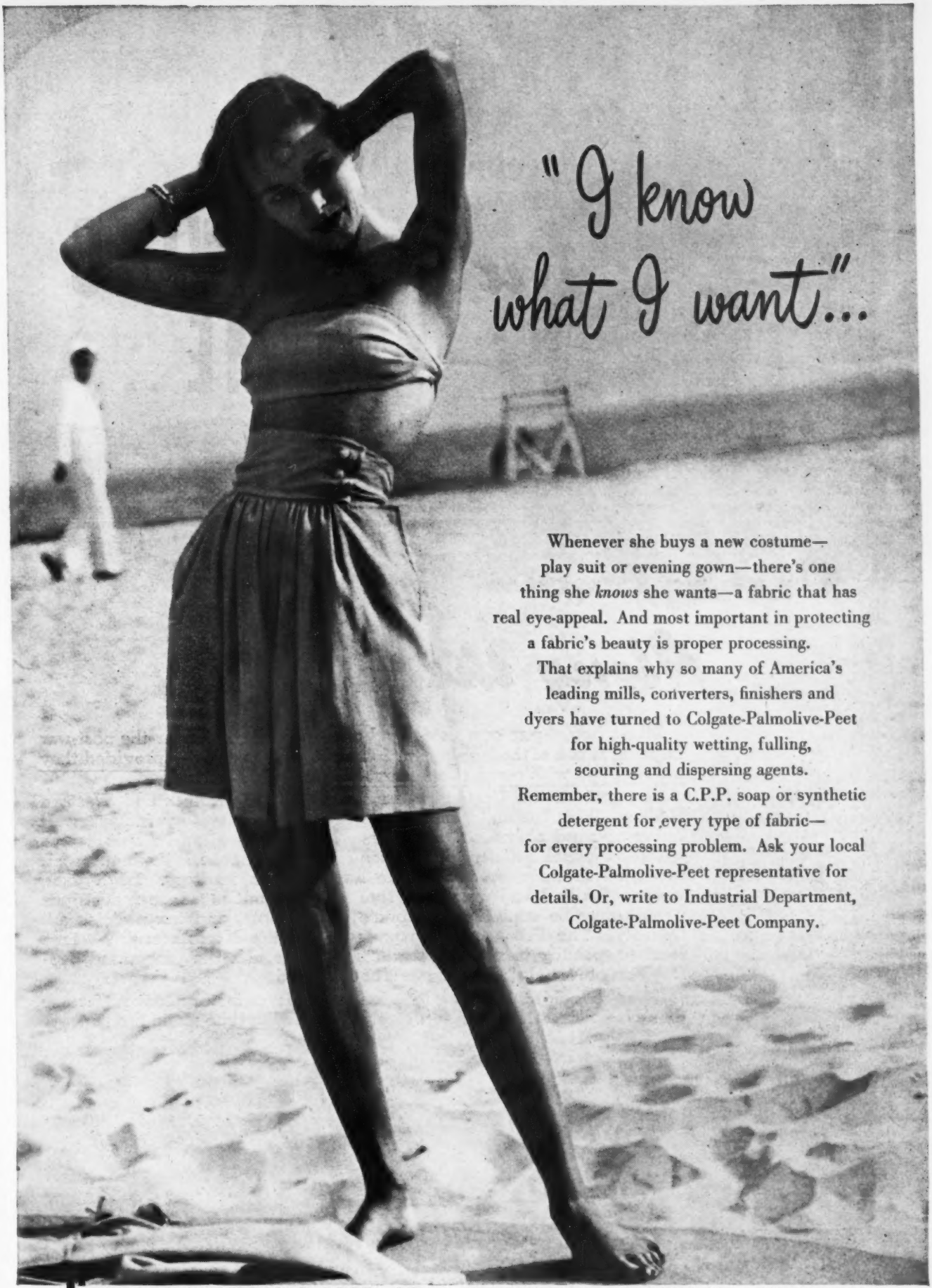
makes possible a substantial reduction in air quantity; frequently to less than one-half the air quantity required with No. 4. The savings resulting from this air-capacity reduction are substantial and are often of such magnitude that the cost of No. 5 with refrigeration may be less than the cost of No. 4 without refrigeration. Furthermore, the operating savings resulting from reduced year-round air circulation will largely off-set the cost of operating the refrigeration plant; thus, the operating cost for system No. 5 with refrigeration compares favorably to the operating cost of No. 4 without refrigeration.

With any system, the basic amount of air required increases rapidly with the maintained level of relative humidity, or as the heat load within the space increases. Where dependence is solely upon outside air for cooling, with the consequent necessity of always reaching for the closest "approach" to outside wet-bulb temperature, air quantity can assume troublesome proportions at high humidities and moderate loads or at lower humidities with high density loads. In many cases with central-station systems, it is difficult to find space for the ducts or for the housing of apparatus; and with the unit system, the number of units required becomes excessive.

The greatly reduced air requirement of No. 5 materially eases installation problems. That system also has flexible control characteristics since final humidity in a multiplicity of zones on a single system can be closely regulated simply by starting or stopping the atomizers in those zones.

TABLE III. Inside Conditions With Outside Wet-Bulb of 78°F., Using Five Humidification Methods

	75% R.H. in Mill		60% R.H. in Mill	
	Dry Bulb (degrees F.)	ET (degrees F.)	Dry Bulb (degrees F.)	ET (degrees F.)
Atomizers	90.5	85.8	96	87.5
Window Fans and Atomizers	86.7	82.6	92.6	85
Saturated Air, Central Station or Units	86.7	82.6	93.8	85 8
Saturated Air, Central Station or Units with Supplemental Atomizers in the Room (No. Ref.)	89.5	85.0	97.8	88.8
Above with Refrigeration for 80° F. ET	83.7	80.0	86.2	80.0



Whenever she buys a new costume—play suit or evening gown—there's one thing she *knows* she wants—a fabric that has real eye-appeal. And most important in protecting a fabric's beauty is proper processing.

That explains why so many of America's leading mills, converters, finishers and dyers have turned to Colgate-Palmolive-Peet for high-quality wetting, fulling, scouring and dispersing agents.

Remember, there is a C.P.P. soap or synthetic detergent for every type of fabric—for every processing problem. Ask your local Colgate-Palmolive-Peet representative for details. Or, write to Industrial Department, Colgate-Palmolive-Peet Company.

COLGATE-PALMOLIVE-PEET CO.

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it's GROWING TIME...

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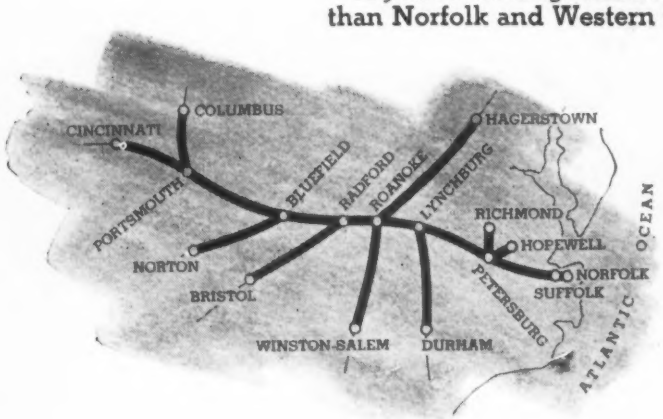
Like a boy, a pup or a new stand of corn, industry under the post-war impetus is one of those things which are bound to grow — provided they are supplied with certain necessary, life-giving elements.

The part of the United States served by the Norfolk and Western Railway is a "natural" for those elements required by industry. It offers at hand abundant pure water, raw materials, and ample power facilities. Fuel Satisfaction, the superior, all-purpose Bituminous coal, is mined in huge volume in the heart of this territory. High-grade workers, skilled and unskilled, live in communities where industrious people may be contented. Climate is favorable, and tax policies are friendly. The Precision Transportation of the Norfolk and Western reaches speedily to national markets and, through the year-round, ice-free Port of Norfolk, to the markets of the world.

If you're looking for a new location for your new factory, look no farther than Norfolk and Western territory. It's growing time along the N. & W.

For detailed information about any section of the N. & W. territory, communicate with the railway's Industrial and Agricultural Department at Roanoke, Va. The Norfolk and Western is eager to serve you — and all information is confidential.



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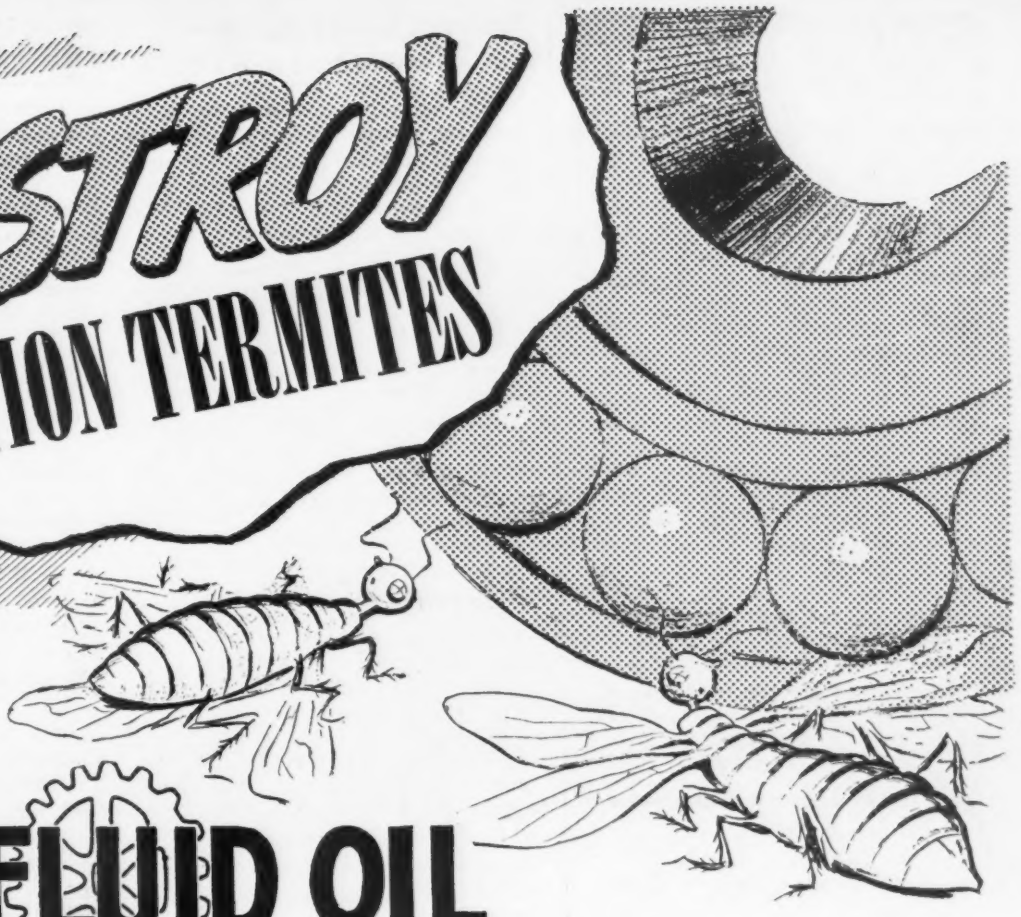

WITH

NON-FLUID OIL

TRADE MARK REGISTERED

Is friction "termiting" the efficiency of your equipment? If you're using ordinary oils and greases it might well be that hidden inherent disadvantages are causing destructive wear and depreciation of your machines and excessive frictional loss of power.

NON-FLUID OIL, through its exclusive adhesive properties overcomes the shortcomings of both liquid oils and greases. Every plant operator knows that for every drop of liquid oil that does a lubricating job, two drops are wasted through dripping and spattering. Thus when you pay for three gallons of oil, only one gallon really serves its purpose of lubricating. Ordinary grease also has serious drawbacks. It can only start to lubricate after heat developed by friction has softened it up. Besides, the body of grease is changed by excessive heat or cold and grease is therefore not consistently dependable as a lubricant.

***Southern District Manager*, FALLS L. THOMASON, Charlotte, N. C.**

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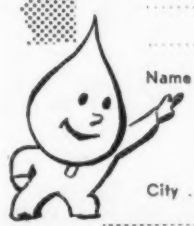

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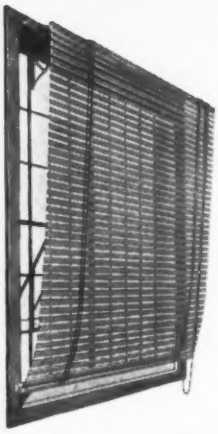
Against GLARE, DRAFT, Sun HEAT

Roll 'em DOWN on BRIGHT DAYS



Roll 'em UP on DARK DAYS

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WOOD SPLINT VENTILATING
SHADES
for TEXTILE work rooms and storage rooms

RA-TOX Shades allow Finger Tip Control of light, Shade and Ventilation, that is; LIGHT without glare; SHADE without darkness; VENTILATION without drafts. Will help maintain high humidity so necessary in weave rooms, as wood splints act as insulators.

This 3-way action of RA-TOX Shades adds comfort and safety for your employees—reduces "Eye Strain" and "Fatigue"—helps to increase efficiency, reduces work spoilage and accidents.

With RA-TOX SHADES you can "roll 'em up" on dark days or "roll 'em down" on bright days to offset changing daylight conditions. A type to fit every industrial window.

RA-TOX WOOD LINK FLOOR MATS

Resistant to
WATER, OIL and GREASE
NON-SLIP

The resilient wood links of RA-TOX FLOOR MATS furnish foot comfort and ease "leg Fatigue" for your employees. Accidents and sickness are reduced by keeping feet dry and off slippery floors.

RA-TOX FLOOR MATS are made entirely of treated and stained hard-wood links. Made to stand hard usage. Stock or special size.

Other RA-TOX Products — Custom-built Venetian Blinds, Steel Ventilators for Industrial Windows and Glass Block Walls.

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HOUGH SHADE CORPORATION
• INDUSTRIAL DIVISION •
1026-D JACKSON ST., JANESVILLE, WIS.

Indirect Labor Control

(*Continued from page 107*)

should have the definite approval of the departmental overseer, plant manager, and general management. Without this backing, the instrument loses its effectiveness and eventually degenerates into an alibi post.

The same general procedure is followed for building the control schedules for the various selected cost centers.

For illustrative purposes, the card-room program is followed through. This department indirect-labor organization may include the following job classifications with the indicated complement of employees at the base operating level:

1 Overseer
1 Second Hand
4 Section Men
3 Card Grinders
2 Card Strippers
1 Waste-Machine Tender
1 Oiler
2 Sweepers

This assignment of establishing the basic labor schedule is most important, because it will later serve as the point of departure in determining the required labor set-up at other operating volumes. The departmental and mill managements should approve this schedule with the full knowledge that they carry the responsibility for operating within it.

Laying out the labor schedules for the other operating volumes may be developed by analyzing the requirements somewhat as shown in Fig. 3.

SUMMARY. Summarized and valued at prevailing mill wage rates, the card-room indirect-labor expense-control schedule may be as shown in Fig. 4.

This schedule, when completed and approved by the departmental, mill, and general management, becomes the indirect-labor yardstick for expense control. Since the number of hands at each bracket is indicated, recalculations of the expense amounts is a simple matter when approved changes in wage rates are made.

The total actual indirect-labor expense each week is compared with the proper total allowable expense selected from the schedule on the basis of the actual departmental rate of activity in terms of machine hours.

The actual number of machine hours recorded will fall between two of the scheduled volumes. The maximum expense allowance is the higher bracket.

Generally, if the total actual expense is within the approved allowance, more detailed control is unnecessary. However, if excessive variances are reported, then a detailed analysis by job classifications can be made to locate the exact causes.

To function properly, any system of expense control should be thoroughly understood by the employees who bear the responsibility. In this particular case the card-room overseer and his second hands will carry the responsibility. They then will interpret the schedule in relation to day-to-day operations. Thus, for any of the selected volume brackets, the overseer can quickly determine whether his actual labor force is at variance with the approved schedule.

The actual number of spindles in operation multiplied by the running hours per week will indicate the machine-hour rate to which the actual labor roll should conform. For example, if the card room in operating a balanced schedule of 20 slubber frames (2,400 spindles) for three full shifts of 40 hr. each, the indicated rate is 288,000 spindle hours (2,400 multiplied by 120). Therefore, the allowable expense is $735.00 per week. Also, the number of employees by classifications is shown. Thus, at any time during the week, the departmental overseer may determine how his actual labor force compares with the standard schedule for the actual operating volume.

The mechanism is available for control at the time and place that expense is being incurred and not on the basis of historical reports.

A similar procedure can be followed for each of the other cost centers. Further, this general type of program may be employed for the control of other expense accounts which have a wide range of variability associated with the rate of activity.

Fire-Resistant Treatment

(*Continued from page 113*)

bers, and curing at elevated temperatures. This results in the formation of a phosphate ester of cellulose in which the other acidic hydrogens of the phosphate are neutralized as the nitrogen salt. The excess nitrogen compound may then be removed by washing.

Several properties of a 40-in. 9-oz. woven stripe ticking with and without a commercial Ban-Flame finish are listed in Table I (page 270).

These measurements indicate that Ban-Flame finish imparts a high degree of permanent flame- and glow-resistance to ticking fabrics at relatively low "add on" values without adversely affecting fabric stiffness and abrasion resistance, although approximately 20% loss in tensile strength

Get the Facts on Hooker Chemicals from our New General Products List

We've increased the size of our General Products List from 4 to 20 pages. Several new products have been added and you will want to be brought up to date on our chemicals. The increase in pages comes from an endeavor to make it easier for you to get the information you want about Hooker Chemicals.

Larger type, graphic formulas, and a new format facilitate your finding the chemicals in which you are interested. Included are description, principal physical and chemical properties, uses, and shipping containers. This new products list also describes briefly the various chemical processes and facilities which Hooker has available for industry.

You who are not yet acquainted with Hooker Chemicals will find this new Products List an excellent introduction to a source for industrial chemicals of high purity; it will also pay you to refer to this Bulletin whenever you need chemicals. Feel free, too, to call on Hooker's Technical Staff for advice and help on the application of Hooker Chemicals to your problems.

The words "Bulletin 100" on your business letterhead will bring you a copy of the Hooker General Products List.

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From the salt of the earth

Caustic Soda
Paradichlorbenzene
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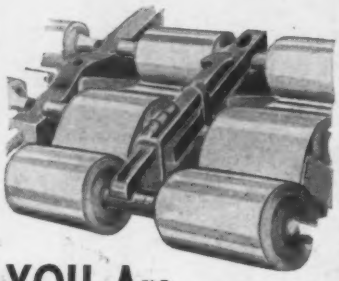
If Your Rolls Are Running A Race



YOU Are the Sure Loser!

Worn saddles drag on the top spinning roll slowing it down and wearing the neck of the roll. Then your top and bottom rolls revolve at different speeds with resulting unevenness in your yarn. The unequal race that replaces the smooth teamwork of the rolls results in a loss for you.

Inspect your saddles regularly. While good saddles wear well, the best won't wear forever. At the first sign of speed change in your top roll, substitute a new DIXON saddle and regain that essential, even rhythm of the rolls.

"It costs so little and saves so much."

Saddle for Whitin Long-Draft Spinning

Wicked or not as preferred. Saddles and stirrups lock together, but can be easily disassembled for cleaning or replacing individual parts.

One of over 400 types for both conventional and Long-Draft Spinning.

DIXON LUBRICATING SADDLE CO.
Established 1876
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Sole Manufacturers of
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LUBRICATING SADDLES

was experienced by this treatment. Effective water-repellency finishes of both the durable and non-durable types have been applied to treated fabrics without appreciably diminishing the flame- and glow-resistance properties of the fabrics. Loss of tensile strength by abrasion may be reduced by certain water-repellency finishes to less than one-half of that of the fabric before treatment as measured by the Taber abraser. Ban-Flame and water-repellency finishes impart mildew resistance. Tests thus far conducted indicate that Ban-Flame-treated fabrics present no serious health hazards.

FIRE-RESISTANT FILLERS. Fire-resistant ticking alone will not prevent bedding from propagating fire when subjected to ignition temperatures. It is necessary to employ fire-resistant filler material as well to attain this objective.

A number of fire-resistant bedding-filler materials are available among which are curled hair, resin-bonded cotton-glass fiber felts, and fire-resistant cotton. Curled hair has been used in bedding construction for many years; suitability of the latter two materials for bedding construction has been recently investigated by the Textile Div. of the Southern Research Laboratory. Values of fire-resistance of a resin-bonded cotton-glass felt manufactured under the name of Satinaire by the Gustin-Bacon Mfg. Co., of Kansas City, Mo.; a fire-resistant cotton felt marketed by Barnhardt Mfg. Co., of Charlotte, N. C.; and untreated cotton felt are listed in Table II (page 272). The cotton felt and the cotton fibers contained in the fourth sample of Table II were flameproofed by the same process. Preliminary results on Ban-Flame cotton felt appear promising.

Fire-resistant cotton and Satinaire show a relatively high degree of resistance to fire as compared to untreated cotton felt. This difference appears to be even greater when the felts are enclosed in ticking and subjected to ignition temperatures. Untreated cotton felt within a mattress, when ignited, is very difficult to extinguish and if not extinguished by exterior means, will be completely consumed by the fire.

Tests thus far conducted indicate that these felts present no serious hazards to health. Glass fibers in Satinaire construction are extremely fine, ranging from 4 to 8 microns in diameter. This fineness is below that which will normally irritate or puncture the skin. In addition to imparting flame-resistant properties to the felt, glass fiber incorporated in Satinaire construction in combination with a plastic bonding agent gives a felt of higher tensile strength and compressional resilience than that of untreated cotton felt.

TESTS ON TICKING AND FILLING. Comprehensive tests on several pillow constructions, which in some cases were compared with tests on full-size inner-spring mattresses of similar construction, show the relative degree of fire-resistance of these constructions. Fig. 1 shows the results of lighted cigarettes on three pillows of different compositions when the cigarettes were allowed to burn until completely consumed. On the average, a cigarette requires approximately 20 min. to burn out when placed on a pillow in a gentle draft of air. In the group from

Table I—Properties of 40-in. 9 oz. Ticking, Treated and Untreated

	With Ban-Flame Finish	Without Ban-Flame Finish
Weight increase due to finish, %	11.2	0
Average Stiffness, mg	222	230
Loss of Tensile Strength on Abrasion, Warpwise, lb./100 Cycles	8.5	8.6
Loss of Tensile Strength on Abrasion, Fillingwise lb./100 Cycles	0.3	0
Loss of Tensile Strength on Abrasion, with Applied Water-Repellent Finish, Warpwise lb./100 Cycles	4.0	.....
Loss of Tensile Strength on Abrasion, with Applied Water-Repellent Finish, Fillingwise, lb./100 Cycles	0	.....
Tensile Strength, Warpwise, lb.	136	185
Tensile Strength, Fillingwise, lb.	41	52
Elongation, Warpwise, %	9.6	11.6
Elongation, Fillingwise, %	10.4	12.0
Flame-Resistance before Laundering		
Length of Char, Inches	2 1/4	12
Afterglow, Seconds	0	19
Flame-Resistance after 3 Launderings		
Length of Char, Inches	3 5/16	.....
Afterglow, Seconds	0	.....
Flame-Resistance with Applied Water-Repellent Finish		
Length of Char, Inches	2 1/4	.....
Afterglow, Seconds	0	.....

Stiffness measurements were made on fabric strips 3½ x 1 in. with a Gurley stiffness tester; abrasion measurements with a Taber abraser employing 200, 400, 500, and 700 cycles; tensile tests with a Scott J-2 machine by the grab method employing 1-in. jaws; flame tests by the 1944 ASTM tentative standard D-626-41T, and laundry tests by a modified ASTM method D-435-42-Test No. 2 employing a neutral detergent.

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Table II—Fire-Resistance of Felts

	Weight of Test Sample	Loss in weight, % (Corrected to 6-gram sample)	After		Area Charred %
			Flaming, Seconds	Smoldering, Seconds	
Untreated Cotton Felt	6.91	25	0	297	100
Fire-Resistant Cotton Felt	4.72	3	0	0	15
Satinaire (Containing non-flame-proofed cotton fibers)	6.58	5	3	0	25
Satinaire (Containing flame-proofed cotton fibers)	7.78	2	0	0	15

The samples were tested by suspending 6-in. squares of the felts in a horizontal position at a height of 3/4 in. above the top of a bunsen burner. A 1 1/2 in. luminous flame was applied at the center of the under surface for 12 sec., then removed. The duration of flaming and smoldering of the samples after removal of the burner, loss of weight, and charred area were measured.

left to right, pillow No. 1 contains untreated cotton felt covered with 9-oz. ticking with no fire-resistant treatment; pillow No. 2 contains untreated cotton felt covered with Ban-Flame-treated ticking, and pillow No. 3 contains Satinaire covered with Ban-Flame-treated ticking. Behind the pillows are shown a square of cotton felt on the left and a square of Satinaire on the right. Print No. 1 shows the pillows before the test; Print No. 2 shows the pillows 5 min. after applying lighted cigarettes; Print No. 3, 10 min. after; Print No. 4, 16 min. after; Print No. 5, 20 min. after applying the cigarettes, at which time all cigarettes were completely consumed and pillow No. 1 was burning so rapidly that it was removed and extinguished with water; Print No. 6, 40 min. after applying the cigarettes and after the fires in pillows Nos. 1 and 2 were extinguished with water. All attempts to extinguish fires in pillows Nos. 1 and 2 with liquid CO_2 extinguishers failed.

The felt of pillow No. 1 was on fire less than 5 min. after applying the lighted cigarette, but at that time there was no evidence of ignition of the felt in pillows Nos. 2 and 3. After the lapse of 10 min., the fire in pillow No. 1 was well under way; but there was still no evidence of fire in the felts of pillows Nos. 2 and 3. After 16 min., the felts in pillows Nos. 1 and 2 were on fire; but there was no evidence of fire in the felt of pillow No. 3. After the elapse of 20 min., the fire in pillow No. 2 was well under way; but there was no evidence of fire in the felt of pillow No. 3. After the elapse of 40 min., pillow No. 3 showed no evidence of fire, although considerable destruction of the felts in pillows Nos. 1 and 2 had occurred. The fires in pillows Nos. 1 and 2 were extinguished approximately 30 min. after application of the cigarettes.

Sheets, pillow cases, and bed spreads have been made effectively fire-resistant with Ban-Flame finish. Blankets made of wool or cotton with a permanent fire-resistant finish give a good degree of resistance to fire propagation.

Although only a few lines of investigation for production of permanent fire-resistant textiles have been explored, present developments in conjunction with the use of metal beds make possible the attainment of bedding which is fire-resistant in all its components.

The National Cotton Council estimates that about 68,800 bales of cotton are used annually in the production of mattress ticking and covers, with another 27,200 bales going into mattress fillers. If present developments in fire-resistant finishes, together with others which are likely to be offered in the near future, were widely utilized by manufacturers to make available permanent fire-resistant bedding to hotels, hospitals, clubs, and other lodging places, the great loss of life and property due to fire could be substantially reduced.

The information in this article came from studies made on a project for Perfection Mattress & Spring Co., Birmingham, Ala.

Textile Equipment News

(Continued from page 127)

ard 350-lb. test, AB flute, double-wall, corrugated cardboard, 48x44 in., with the corrugations running the long way of the sheet. This sheet is supported by three lifts made of corrugated, taped fiber, with four scored inserts in each for additional strength.

The lifts are made in the form of tubes 6 in. wide, 4 in. high, and 44 in. long, arranged at right angles to the corrugations in the top sheet. Z sections, 11 in .long, and glued into position with casein glue in such away that the direction of the cross pieces alternates, added between 25 and 30% to the strength of the lift. The lifts are glued or stitched to the top sheet, thus completing the unit.

The pallet is not waterproof. It should not be exposed to weather con-

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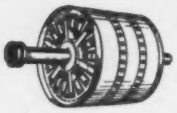
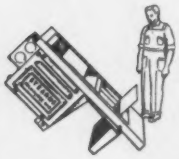


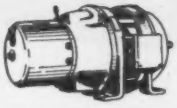
Stearns Magnetic Pulleys, air-cooled for more power. All sizes or complete separator units. Bulletin 301.

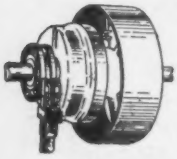
Stearns Suspended Separation Magnets, Bulletin 25. Lifting Magnets, Bulletin 35, all sizes and shapes.



Stearns Automatic Spout Magnets for catching tramp iron in your material flow. Bulletin 92.

Stearns Magnetic Disc Brakes stop over-running motors and machinery. Rugged and compact design. Bulletin 604.





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Textile Equipment News

(Continued)

ditions known to be unfavorable to ordinary corrugated containers of similar material.

Magnetic Separators Require No Insulation

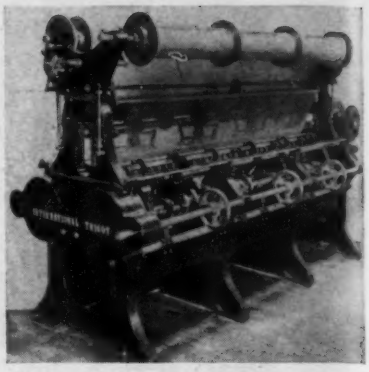
A line of permanent-magnet separators has been announced by Homer Manufacturing Co., Inc., Lima, Ohio. Designed for use in extracting tramp metal from all types of free-flowing materials, the separators are said to be particularly effective in removing iron and steel particles from textile materials in process.

The units are compact and require little space for application. A cast-aluminum frame is reported to make it possible to attach one of the separators to any equipment without use of insulating materials.

Permanent-magnet separators are compact and require little space for application. (Homer.)

New Simplex Machine Has Improved Design

A new Simplex double-knit tricot machine has been announced by International Tricot Machinery Corp., 7063 Hudson Blvd., North Bergen, N. J. Present machines are 84 in. wide and of 32 gage; but the company plans to make machines in gages as low as 14, according to demand, and in any width desired. Not to be confused with high-speed tricot machines, the new machine knits double-weight tricot fabrics which consist of two interlocked and interknit fabrics back to back. The machine employs double needle bars and double guide bars and is, in effect, two regular tricot machines working back to back to produce a common fabric.



Simplex double-tricot machine is expected to operate at 400 rpm. (International Tricot).

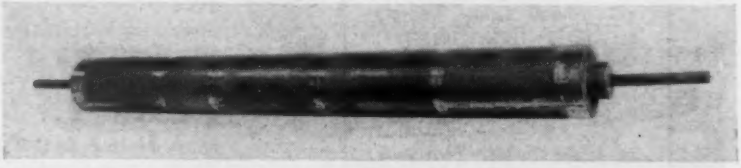
Speed of the Simplex machine is expected to reach 400 courses per min. Pattern control is effected by cam or by link chain. The present 32-gage machine operates on 80s to 120s cotton-count yarns.

Let-off motion is actuated from the driving elements of the machine and includes provision for tension control on the warp yarns. Warp beams up to 21-in. flange diameter can be used.

Other features claimed for the new machine are: simplified control for thermal expansion of needle, sinker, presser, and guide bars; improved guide-bar tension control, designed to eliminate distortion; and high efficiency and simplicity of operation.

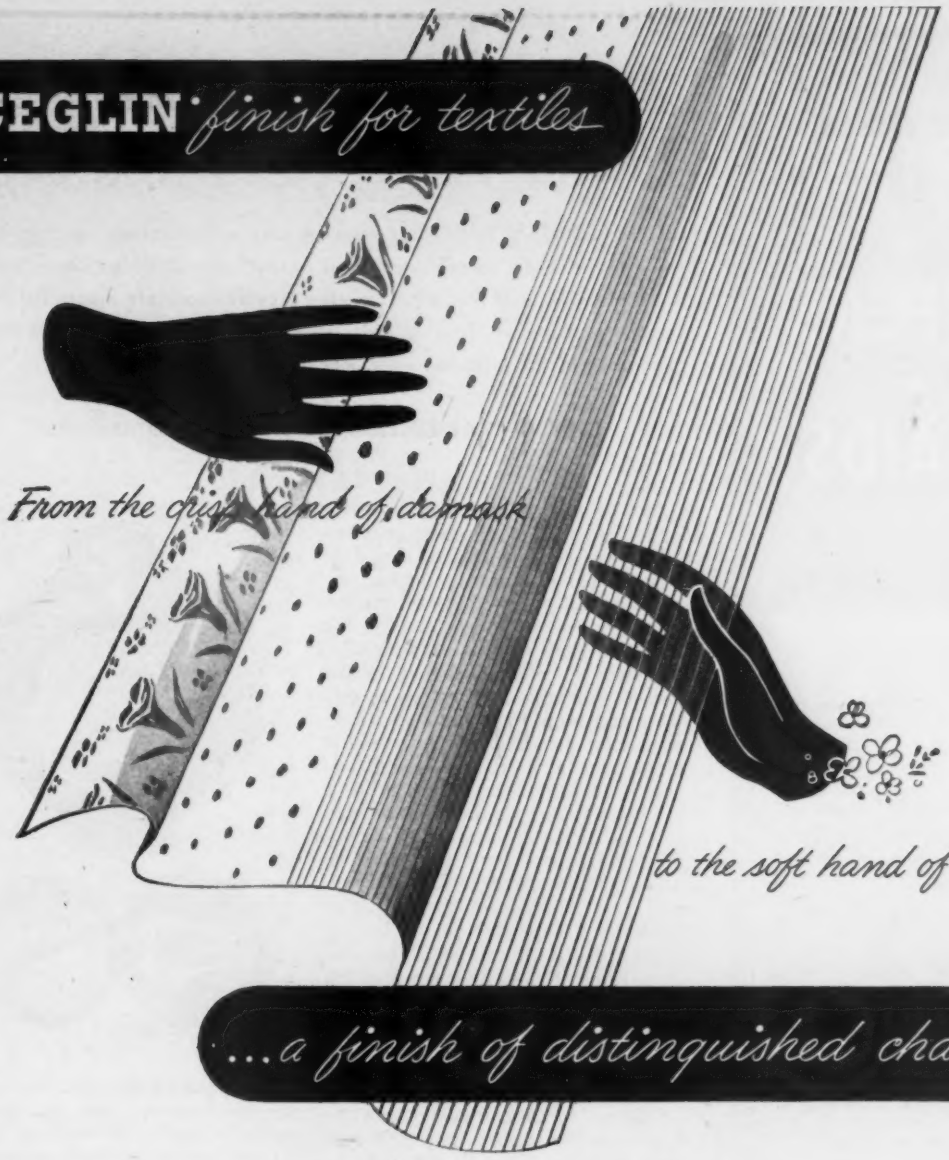
Sheet-Metal Rolls Are Light in Weight

A new roll designed for many dry-service uses has been announced by Rodney Hunt Machine Co., Orange, Mass. Called Shaf-Tite, the new roll has a rolled sheet-metal body with smooth, soldered joints and has internal-disk heads with cast-iron end hubs to provide strong shaft anchorage. Rolls are available in either idler or driven types, in diameters of 5, 6, 7, 8, 9, and 10 in.



Light-weight sheet-metal rolls designed for dry-service uses are fitted with cast-iron end hubs to provide strong shaft anchorage. (Rodney Hunt.)

CEGLIN finish for textiles



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TIME RECORDER Measures Woolen-Card Efficiency

HIGHLIGHTS: *Mills must have means for measuring running time of machines in order to achieve highest production—Combination system using time recorder and revolution counter provides accurate means for judging machine efficiency—Time recorder requires no drive connection to machine, but operates by vibration when machine is running.*

BY GUSTAV ZELLNIK, *Consulting Editor, TEXTILE WORLD*

THE MORE EFFICIENT our machine age becomes, the more efficient control of machines is needed. There are many different devices to measure production, but one of the most practicable of all is one which measures the actual running time of a machine.

Observations conducted in many mills have proved that, besides control of production, there must also be a means for determining exactly within what time a certain production was reached. Many woolen card rooms have counters which give the exact number of turns of the spool drum on a card. The number of turns can easily be transferred into yardage, and the yardage into pounds. Also, it is possible to know what the production was in each shift, but it is difficult to measure the time when the machine was stripped or when, for the one reason or other, the card stood still. It is a common thing for a carder to know what the average production of a machine should be and, therefore, with what efficiency the card should run to achieve a competitive unit cost; but, even so, he usually does not know at what times and for how long the card was stopped, without keeping an exact record of each interruption and standing time.

(Continued on page 278)

Fig. 1. The locked case of the time recorder forestalls tampering. Inside, a simple clock mechanism revolves the chart past the pendulum-type marker. The recorder, shown at lower left, is operated by the vibration of the machine to which it is attached. On the chart which it contains, heavy lines are made when the machine runs, and light lines are made when the machine is idle.

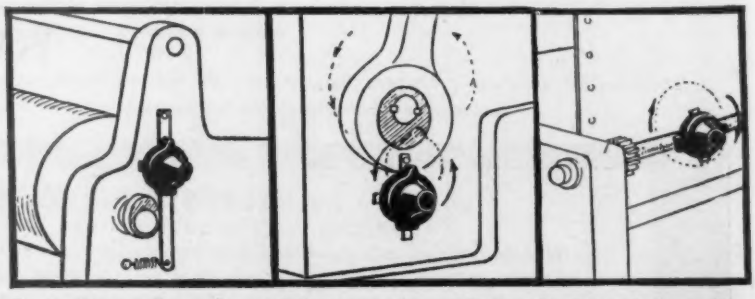

Fig. 2. The recorder can be mounted on any moving, rotating, or vibrating part of a machine.

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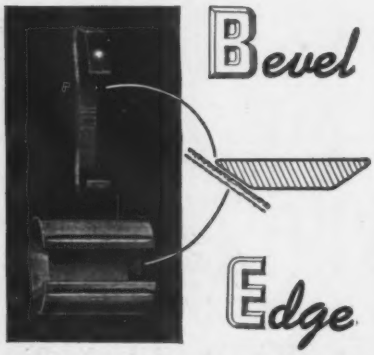

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Time Recorder Measures Wool-Card Efficiency

(Continued from page 276)

To measure the running time of a card, or any other machine, there is a small device which can be installed—a device that does not have to be connected with any gear or pulley of the card, because it is operated by the vibration of the machine. Every machine, whether it is a card or some other type, has a stronger vibration when it is in motion than it has when standing idle.

SERVICE RECORDER. The device, called the service recorder, can be clamped permanently on to a machine. The foreman of the carding department is the sole possessor of the key. Every morning he takes out the chart when starting the day shift. The office figures out the running time of the machine and the time efficiency of the card.

When the card is in motion, the device always makes a heavy line; and when the machine is idle, it makes only a thin line. So it is easy to figure out the hours and minutes the card was in operation.

The chart from one card, shown in Fig. 3, reads as follows:

The total working time of the day and night shifts was 21 hr.; this time was obtained from the men's time cards. The operating time, that is, the time the card was actually working, according to the chart, amounted to 17 hr. In other words, the card was operated at approximately 81% efficiency on a time basis. In order to add up the operating time quickly, many of the mills using service recorders also use a device called a totaller. Having such a totaller, the department which gets the recorder charts for checking can figure out quickly and easily the total time of operation and the efficiency of the machines.

Fig. 3. A service-recorder chart from a card of a woolen mill shows 17 hr. actual operation out of a total of 21 hr. of working time shown on the time cards of card-room workers.

What system of time control would be advisable for a well-equipped, efficiently run mill?

It is not unwise to use a double-check system; that means to utilize a revolution clock and a service recorder. The cost of such devices is comparatively low.

How would such a system work?

The revolution clock gives the number of the revolutions of the spool drum. Using clock readings, the production of a card can be figured out by the following formula:

$$\frac{D \times \pi \times R \times \text{Ends}}{\text{run} \times 960} = 100\% \text{ production per hour.}$$

D = diameter of the spool drum
π = 3.1416
R = revolutions of the spool drum per minute.
run = size of roving.
960 = a constant.

CALCULATING EFFICIENCY. After calculating the figure for 100% production per shift and comparing it with the actual production of the card within the time the service recorder registered, it is not difficult to figure out the efficiency of the machine. Should it be observed that the efficiency is steadily below 85%, an effort should be made to find out what is wrong.

As a standard production on cards, it is customary to figure on an average of 85%; of course, the efficiency is sometimes much higher or, if unforeseen breakdowns occur, lower. But the average yearly production efficiency of a card should be 85% minimum.

The yearly average should be used for the obvious reason that it is necessary to allow for not only steady stripping but also overhauling, reclothing of parts, and grinding of the card. As a control measure, it should be feasible to check the efficiency of the machine by the month or by the week; but it is not wise to come to a definite conclusion and to make a final statement based on the production of only one week.

If a foreman sees that the running time of a machine is steadily below expectation, and if he notices that the machine in question stands too much, then he should look into the matter immediately to find the causes and to eliminate them. The service recorder is like a watchman, not only for the machine but also for the man who is responsible for the operation of the machine.

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News of the month

Seminar Program. The National Textile Seminar, sponsored by the Philadelphia Textile Institute, will have a schedule of 10 key subjects at its meeting May 12 to 16 at Shawnee-on-Delaware. The annual seminar banquet will be held Friday evening. The seminar subjects follow: Monday, May 12—Afternoon Subject: "The Retail Merchant Surveys the Textile Industry." Evening Subjects: (A) "Styling for Men." (B) "Styling for Women." Tuesday, May 13—Morning Subject: "Tops—As related to the General Textile Industry." Evening Subject: "Verticalization in the Textile Industry." Wednesday, May 14—Morning Subject: "Knitting—In All of Its Phases." Afternoon Subject: "New Fibers and Fabrics for Old." Thursday, May 15—Morning Subject: "A Critique of Textile Education." Evening Subject: "Some Aspects of Industrial Relations." Friday, May 16—Morning Subject: "Waste Utilization." Afternoon subjects: "An Engineer Views the Textile Industry" and "Electronics and the Textile Industry." Evening: Annual banquet, will feature a prominent, nationally known speaker.

More Nylon This Year. The additional Martinsville, Va., unit for production of nylon yarn will begin operation in July or August and reach about full production in September or October, according to Warren A. Beh, director of sales, Nylon Div., E. I. du Pont de Nemours & Co., Inc., talking at the Knit Goods Weekly Hosiery Merchandising Forum recently. Current production, he said, is resulting in the manufacture of 30,000,000 pr. of women's nylon stockings a month. After the new Chattanooga, Tenn., plant is in operation in the summer of 1948, production of nylon yarn will be three times that available at the end of the war. Mr. Beh mentioned that 15-den. monofilament and 20-den. multi-filament nylon yarns have been added to the numbers being manufactured. Experimental work is going on to produce 10-den. monofilament and multi-filament yarn as well as 20-den. monofilament. Mr. Beh pointed out that any further reductions in the price of nylon yarn would have little effect on the price of hosiery, since the yarn in a stocking costs only 11¢, based on yarn price of $2.75 lb.

Outerwear Knitters Meet. Bertram E. Green, of Revere Knitting Mills, Malden, Mass., was elected president of the National Knitted Outerwear Association at the annual meeting last month. He succeeds Oscar W. Fishel of Standard Knitting Mills, Cleveland, Ohio, who has been president for the last three years. Mr. Fishel was named vice president to represent the Cleve-

Textile Calendar

Lowell Textile Institute, 50th anniversary celebration, Boston and Lowell, Mass., Apr. 25 and 26, 1947.

National Association of Hosiery Manufacturers, annual meeting, Hotel Claridge, Atlantic City, N. J., Apr. 28, 1947.

Hosiery Industry Conference, Hotel Claridge, Atlantic City, N. J., Apr. 28 and 29, 1947.

Knitting Arts Exhibition, Convention Hall, Atlantic City, N. J., Apr. 29 to May 2, 1947.

American Cotton Manufacturers Association, annual meeting, Sheraton-Bon Air Hotel, Augusta, Ga., May 1 to 3, 1947.

Phi Psi Textile Fraternity, national convention, Hotel Charlotte, Charlotte, N. C., May 2 to 4, 1947.

Second National Plastics Exposition, Coliseum, Chicago, May 6 to 10, 1947.

ASME Textile Div., Lubrication Committee, luncheon meeting, Copely Plaza Hotel, Boston, May 9, 1947.

National Textile Seminar, Shawnee-on-Delaware, May 12 to 16, 1947.

Cotton Manufacturers Association of Georgia, 47th annual meeting, Sheraton-Plaza Hotel, Daytona Beach, Fla., May 15 and 16, 1947.

A World Trade Week, sponsored by Chamber of Commerce of the U. S., May 18 to 24, 1947.

International Exposition of Textiles, Grand Central Palace, New York, June 2 to 7, 1947.

Underwear Institute, annual meeting, New York, June 4 and 5, 1947.

ASTM, annual meeting, Atlantic City, N. J., June 16 to 20, 1947.

Textile Research Institute, annual meeting, Waldorf-Astoria, New York, Nov. 13 and 14, 1947.

International Heating & Ventilating Exposition, Grand Central Palace, New York, Feb. 2 to 6, 1948.

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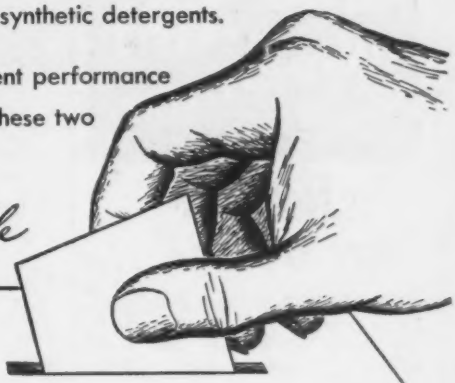

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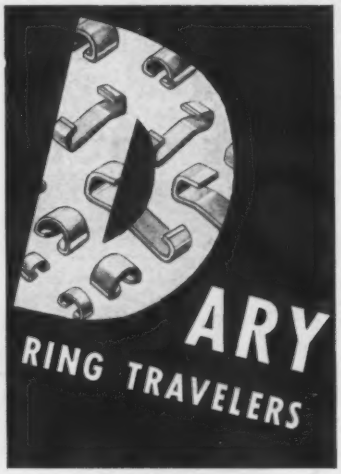

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land district. Irving Saltzman, of Premier Knitting Mills, New York, was re-elected treasurer. Sidney S. Korsenik, was renamed executive director and counsel; Harold Korzenik, counsel; and Edward A. Brandwein, administrative secretary. At the annual luncheon at Hotel Astor, Edward P. Tastrom, textile editor of the *Journal of Commerce*, New York, spoke on the situation affecting the three principal yarns which the outerwear knitters use—cotton, rayon, and wool. Dr. Henry Bund, of the Research Institute of America, New York, spoke optimistically of the outlook. He said "American business in general, including those industries which face a difficult readjustment, will go on to a period of sounder and longer-lasting prosperity."

Lubrication Simplification. The ASME Textile Div. (Lubrication Committee) is planning the third in a series of conferences for the purpose of simplifying and improving textile mill lubrication. This conference is scheduled for May 9 at Copley Plaza Hotel, Boston, Mass. Invitations are extended to textile machinery manufacturers, lubricant companies, and allied firms. L. W. Parkman, Westinghouse Electric Corp., 10 High Street, Boston, Mass., is in charge.

H. H. Schell Speaks. The collateral group of the National Association of Wool Manufacturers held a well attended luncheon meeting at Hotel Commodore, New York, Mar. 11. Herbert H. Schell, president of Sidney Blimenthal & Co., was the principal speaker. He described the essentials of the American system of free enterprise, touching on taxes, labor, tariffs, etc. He stressed the importance of putting the country's fiscal policy on a sound economic basis and of removing major impediments in progress toward labor-management peace.

Piedmont AATCC Meets. Plans have been completed for the Spring meeting of the Piedmont Section of AATCC at the O. Henry Hotel, Greensboro, N. C., Apr. 12. At the technical session, the principal speaker was M. C. Welker of the Ion Exchange Resin Div., American Cyanamid Co., who discussed "The Use of Ion Exchange Resins for Demineralizing Water." At the banquet, the principal speaker was W. D. Carmichael, Jr., controller and business manager of the University of North Carolina. W. W. Gluyas, Adams-Millis Corp., High Point, N. C., is general chairman.

National Cotton Week. The period May 19 to 24 has been selected for the nationwide observance of National Cotton Week. Cotton-Textile Institute and National Cotton Council are co-sponsors of this merchandising event. The slogan will be "Pick Cotton." Posters (see above) and literature stressing merits of cotton merchandise will be sent to more than 100,000 stores across the continent which regularly participate in the event.

China to Sell Seized Textile Mills. (By *McGraw-Hill World News*) Among the government-held properties which will go on the auction block, under the Chinese government plan to get out of business, will be China Textile Industries, Inc. This company took over all Japanese textile mills in China after VJ-Day and has operated them on behalf of the government. Included in its possession are 1,570,000 cotton spindles and 34,437 looms, about half of the standing equipment in China. In addition it owns and operates about 50% of the nation's woolen capacity. Total value is placed at $100,000,000. Conditions of the sales have not been worked out; but government officials state that foreign firms may make purchases. Dr. T. V. Soong indicates that arrangements will be made for foreign investors and operators to take profits out of China.

Air Conditioning by Law Shown Expensive. At a hearing on the proposed bill which would require the installation of air-conditioning equipment in all South Carolina textile plants, it was forecast that the cost would be between $40,000,000 and $50,000,000. The estimate was made by

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George Morgan, engineer with J. E. Sirrine & Co., Greenville, S. C., and did not include garment factories. Frank Watkins, attorney and legal representative of the Cotton Manufacturers' Association of South Carolina, estimated that, at present output of and demand for air-conditioning equipment, it would take 30 to 40 years to air-condition all the plants.

Lowell's 50th Anniversary. Plans for the golden anniversary program of the Lowell Textile Institute have been practically completed for a two-day celebration starting at the Hotel Statler, Boston, on Apr. 25, with Massachusetts Commissioner of Education John J. Desmond, Jr., as principal banquet speaker. On Apr. 26, open house will be held at the Institute, which will include laying of the cornerstone of a new dormitory at 10 a.m. and acceptance of a painting of President-emeritus Charles H. Eames in Southwick Hall at 11 a.m. An alumni meeting will follow, with an address by President Kenneth R. Fox of the Institute on "The State of the Union." At 3 p.m. a baseball game is scheduled between the L.T.I. and the American International Institute. Harold V. Farnsworth, '16, and James A. Irvine, '17, are co-chairmen of the semi-centennial celebration.

Fabric Show. June 2 will mark the opening of America's first International Exposition of Textiles, Trimmings, & Factory Equipment. The apparel manufacturing industry will have the opportunity of inspecting in one place over 250 lines of textiles made in this country, embracing cottons, woolens, silks, rayons, and other synthetics, as well as over 150 lines of trimmings and garment-factory equipment. The show will be in Grand Central Palace, New York, and will run for a week. Visitors from Canada and South American countries, as well as from other foreign countries, are expected to attend this exposition. The organization of the show is headed by Arthur Tarshis.

To Reduce Damage in Transit. After a year of trial, Union Pacific Railroad has termed "highly successful" its project to reduce damage to shipments by the employment of a container engineer. Believed to be the first railroad to add a packaging expert to its loss and damage prevention organization, Union Pacific hired Warren R. White, a container engineer of 20 years experience, as an additional effort toward counteracting the ever-increasing burden of freight loss and damage payments. Such payments in the United States as a whole in 1946 totaled between $80,000,000 and $100,000,000. The railroad makes an investigation of each freight loss to determine whether package failure is involved. If so, analysis of the cause of failure is forwarded to the shipper with concrete suggestions for improvement which might be made.

Rayon Production Rising. Total domestic shipments of rayon yarn and staple fiber in February amounted to 70,300,000 lb., according to *Rayon Organon*. For the first two months of the year, domestic deliveries aggregating 147,000,000 lb. were 10% over shipments in the corresponding period last year.

Japan's Cotton Spindles. A 4,000,000-spindle capacity for Japan's cotton mills over the next four years has been recommended by Allied headquarters in order to permit moderate expansion in export after satisfying home needs.

First Indian Rayon Next Year. India's first rayon plant is scheduled to be in production by late 1948. The project, to be constructed near Bombay, will cost $10,000,000. Negotiations for similar plants in Madras, Calcutta, and Lahore are in progress.

Gatner Uses New Color Effects. Gantner of California, San Francisco, is including in its sports wear lines fabrics dyed in accordance with the formulas developed during the war for the special marker materials used for military identification and visible for several miles and through haze. These colors were described in the columns of TEXTILE WORLD several years ago. The swim suits and sports apparel will be vivid enough to be visible for two miles, the makers state.

California Gives Textile Courses. The University of California at Los Angeles is offering five evening courses in textile manufacturing, featuring processes of manufacturing, testing, design, and laboratory work. Inspection trips to manufacturing plants are included. Prof. Ernest Nelson, textile engineer, is instructor.

Movie on Rope Making. "Forty Centuries of Service" is an industrial and educational motion picture telling the story of rope. It is a 16-mm, black-and-white, sound motion picture, having a running time of about 33 min. It was produced by American Mfg. Co., Brooklyn, N. Y.

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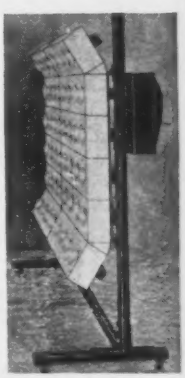

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NEWS ABOUT Suppliers

Whitin Machine Works, Whitinsville, Mass., has elected Edward S. Alden as treasurer, succeeding E. Kent Swift, who continues as chairman of the board. Mr. Alden, formerly assistant treasurer, has been with the company about 30 years. Phillips Ketchum has been elected a director in place of Nathaniel Ayer.

Saco-Lowell Shops, Biddeford, Me., has appointed John Chafee as works manager at Biddeford. R. A. Kettley, vice president of Saco-Lowell Shops, who has been in charge of manufacturing in Biddeford, has transferred to Boston and makes his headquarters in the central office there.

Crompton & Knowles Loom Works, Worcester, Mass., has appointed Joseph F. Molloy as export sales manager. He has been handling export work in the sales department for the last five years.

Emmons Loom Harness Export Co., export agents for Emmons Loom Harness Co., Lawrence, Mass., has appointed Aristidis L. Makris, 6 Agias Irinis, Athens, Greece, as exclusive agent for that country.

Scott & Williams, Inc., New York—Mrs. Irene Sheppard Sykes, director of retail promotion for Scott & Williams, Inc., has expanded the firm's nationwide retail sales training program to promote effective over-the-counter selling of seam-free hosiery certified by the "Seal of the Dancing Twins." The new training staff began a tour of stores throughout the country on Mar. 25.

U. S. Bobbin & Shuttle Co., Providence, R. I., has elected William J. McGeough president, succeeding Clarence R. Howe, who has retired because of his health. Mr. McGeough was formerly executive vice president, general manager, and assistant treasurer of the company. Francis C. Lynch has been re-elected chairman of the board. Ira C. Jones has been made vice president and Wesley G. Carlson, secretary.

A NEW SHOW

The International Exposition of Textile Machinery Equipment, & Supplies is scheduled to be held in the Kingsbridge Armory, New York, April 26 to 30, 1948. The building is 22 minutes from Times Square by subway and has what is described as the largest open floor area in the country, 185,000 sq. ft. without columns. Through cooperation of the New York Hotel Association and the New York Convention Bureau, thousands of hotel rooms will be made available at the time of the exposition next year for visitors from all over the world. The general public will not be admitted to the show, which is under the management of Exhibitions of Fashions, Inc., 36 West 47th St., New York 19, N. Y.

Universal Winding Co., Cranston, R. I., reports sales for the 28 weeks ended Jan. 11, 1947, of $3,794,408 compared with $5,261,408 for the year ended June 30, 1946. The company is now making 20 types of winding machines, of which 13 are textile winders and 7 are coil winders. Some business is done in making warper cone creels. The company's branch in Manchester, England, handles a fair amount of reconditioning business. In the 5-year period ended June 30, 1941, the company's repair and replacement business represented 34.4% of its annual dollar sales, and during the year ended last June, 41.4%. The 28 weeks above noted totaled 34% for repair and replacement sales.

Kaumagraph Co., Wilmington, Del., is now represented on the West Coast by Archie Henry, who will cover ten Pacific States. Mr. Henry, with long textile experience, is especially qualified to give service to users of dry transfers, Prestomarks, and lithography adapted

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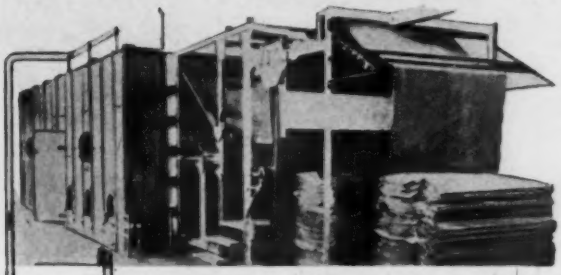
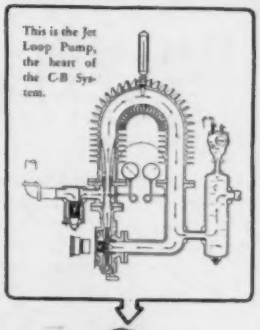


When a large New England worsted mill added three additional cloth dryers operating at 90 psi. to their boiler load, trouble started. Flash loss was heavy, fuel costs rose rapidly and serious difficulty was encountered in maintaining boiler operating pressure with a feedwater temperature of 212° F. Condensate was being returned to an open receiver.

In an attempt to solve these difficulties it was decided to install a Cochrane C-B System of High Pressure Condensate Return, as shown in the accompanying photodiagram. The 9000 lb. per hr. condensate load from the dryers *was returned in a closed circuit* directly back to the boilers at a temperature of 320° F. — increasing the temperature of the dryers 51%! This hot return increased the available boiler capacity — enabled steadier operating pressures — reduced fuel cost for this load by 11% and cut down make up requirements. An even greater benefit was the increase of 10% in the drying rate brought about by positive elimination of condensate from the dryer coils.



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Industrial Yarn Co., New York, has moved to new and larger quarters at 351 Broadway, New York, after 42 years on nearby Leonard St.

James W. Cox, New York, has removed his office to 40 Worth St.

Milton Harris Associates, Washington, D. C., has changed its name to Harris Research Laboratories which is staffed by the same personnel and is continuing its same program of research, development, and consultation for the textile and allied industries. An additional new firm has been formed under the name Harris Instruments, Inc., which will conduct instrumentation research and develop and manufacture new research instruments especially for the textile industry.

L. Sonneborn Sons, Inc., New York, has appointed Henry M. Wogisch as purchasing agent. He has been with Sonneborn since 1919.

Diamond Alkali Co., Pittsburgh, Pa., has elected Fred W. Fraley, who is vice president in charge of sales, to be a director of the company.

Armstrong Cork Co., Lancaster, Pa., has transferred F. Stanley Bowden from its Greenville, S. C., office to Atlanta, Ga., as resident salesman of that territory. He will make headquarters at 887 E. Rock Springs Road, N. E., Atlanta.

Sonoco Products Co., Hartsville, S. C., has sponsored a new radio dramatic series titled "My Town" which marks constructive use of radio in the field of industrial public relations. It is a transcribed program and has just been completed by the NBC Radio-Recording Divisions. The series depicts the day-to-day life of the Davises, a typical family which lives in Hartsville and whose members have been employed at Sonoco for three generations. Each episode, complete in itself but with a continuing story line, treats some phase of the Davises' life in its relation to the community and the company for which they work. It will be broadcast by WHSC of Hartsville and neighboring stations.

JOHN C. COOK, for 22 years with W.R.C. Smith Publishing Co., Atlanta, Ga., who has resigned to move to Sao Paulo, Brazil, where he will set up an office to represent U. S. manufacturers of textile machinery and supplies. For the last 10 years, Mr. Cook was manager of "Textile Industries" (formerly "Cotton").

Industrial Rayon Corp., Painesville, Ohio, plant is to receive the Distinguished Service to Safety Award presented by the National Safety Council for an outstanding record of industrial safety achievement during 1946. The accident frequency rate for the year was 4.8% against the average of 14.0% for all industry.

Corn Products Refining Co., New York, has made the following appointments of district sales managers: R. R. Adams to be in charge of Mid-Western Div. with headquarters in Chicago; J. H. Healey to direct sales in the Southern territory from Memphis; A. G. Peterson to be in charge of the Eastern Div. at Philadelphia; while J. E. Walz directs Pacific Coast Div. sales from San Francisco. All are vice presidents of Corn Products Sales Co.

Monsanto Chemical Co., St. Louis, Mo., has appointed Dr. Frederic L. Matthews as associate director of research of the company's Merrimac Div., Everett, Mass. The board of directors has approved a company project which will launch Monsanto into the commercial production of polyvinyl chloride plastic on a major scale. The product will be marketed as Polvin. The project involves construction of manufacturing facilities at the company's Plastics Div., Springfield, Mass. Charles Allen Thomas, Monsanto vice president and and technical director, has been named as the second recipient

One p.

NYLON MILL FOR DUPLAN CORPORATION

AT WINSTON SALEM, N. C.

(Illustrated on Front Cover of November 1946 Issue of Textile World)

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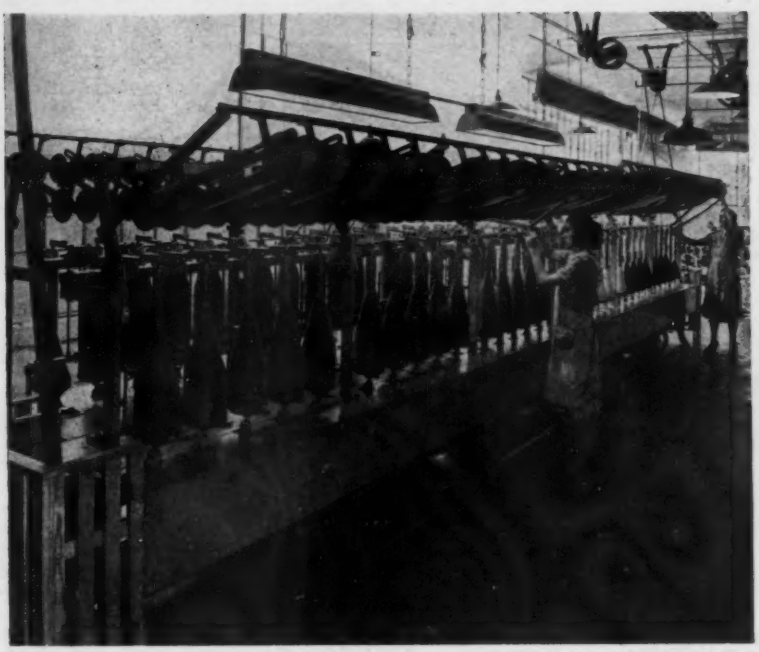

Illustrated is the Boyd-Fidelity Jumbo Bobbin Winder . . . especially efficient in winding skeins as received from dye house onto giant bobbins preparatory to subsequent operations.

The equipment shown is made of 15 spindle units for five pound bobbins of 7½" traverse, 5¾" base and 23" overall. These giant bobbins mean minimum changing of bobbins, tying of ends and threading of guides.

Boyd builds a highly efficient line of Cup and Mechanical Builder Winders for bottle bobbin winding in units of various sizes. Special feature is top centering device for bobbins, insuring true running at high speed.

Our engineering department is at your service.

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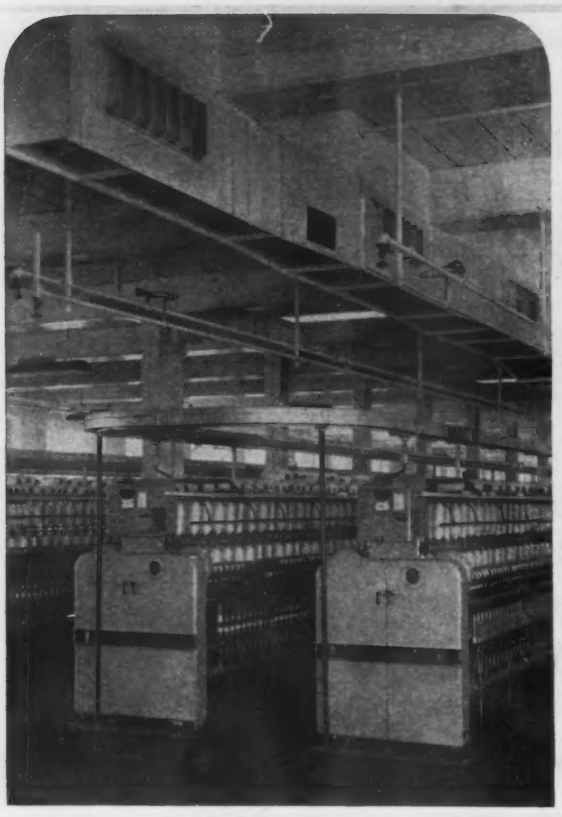
Philadelphia 3, Pa.



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Others have, and it hasn't cost a cent . . . Paid for itself remarkably soon.

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Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.

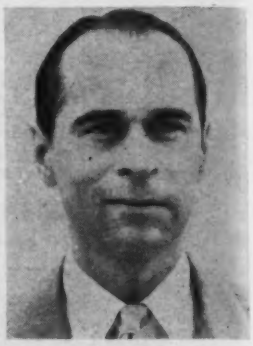
of the Industrial Research Institute Medal which is given for an outstanding contribution to the field of industrial research. Presentation will be made to Dr. Thomas in June.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., has elected Richard B. Tucker as executive vice president and Donald C. Burnham and John A. Wilson as vice presidents. Harry B. Higgins is president. Mr. Tucker joined Pittsburgh Plate in 1929 as manager of plate glass sales. He was elected to the board of directors in 1942 and made a vice president in 1944. Mr. Burnham will be in charge of the Merchandising Div. and all glass sales; Mr. Wilson will be the operating head of the Glass Mfg. Div. Wallace R. Harper, manager of the firm's Boston, Mass., warehouse for the last 10 years, has been named manager of plate glass sales, succeeding Mr. Burnham. A $500,000 expansion program is underway at the Pittsburgh Plate Glass Co.'s Houston, Texas, paint and varnish manufacturing plant. E. D. Griffin is vice president in charge of the firm's paint division. Martin G. Levens has been appointed Cleveland, Ohio, sales representative for the Columbia Chemical Div. of Pittsburgh Plate Glass. W. I. Galliher is executive sales director for this division.

Wheelco Instruments Co., Chicago, has recently made arrangements whereby Wheelco instruments will be manufactured and marketed throughout the United Kingdom by Ether, Ltd., of Birmingham, England. Wheelco has appointed E. W. Heffernan manager of its newly established sales and service office, Philadelphia, Pa.

S. C. Johnson & Son, Inc., Racine, Wis., has appointed Robert N. DuPuis, former assistant director, Miner Laboratories, Chicago, to be assistant research and development director, of the Johnson company.

Westinghouse Electric Corp., Pittsburgh—The 1947 Westinghouse Machine Tool Electrification Forum will be held in the Hotel Statler, Buffalo, N. Y., on Apr. 22 and 23. This will be the eleventh annual forum sponsored by Westinghouse, the purpose of which is to give machine-tool engineers and executives of the machine-tool builders an opportunity to discuss electrical problems relative to the design and function of machine tools.



O. J. THEOBALD, Jr., who has been promoted by The Mathieson Alkali Works, New York, to the position of district sales manager for the Charlotte, N. C., area. He will supervise company sales activities in Virginia, North and South Carolina, and parts of Tennessee and West Virginia. Mr. Theobald has been with Mathieson since 1932, and was last year appointed assistant district sales manager at Charlotte.

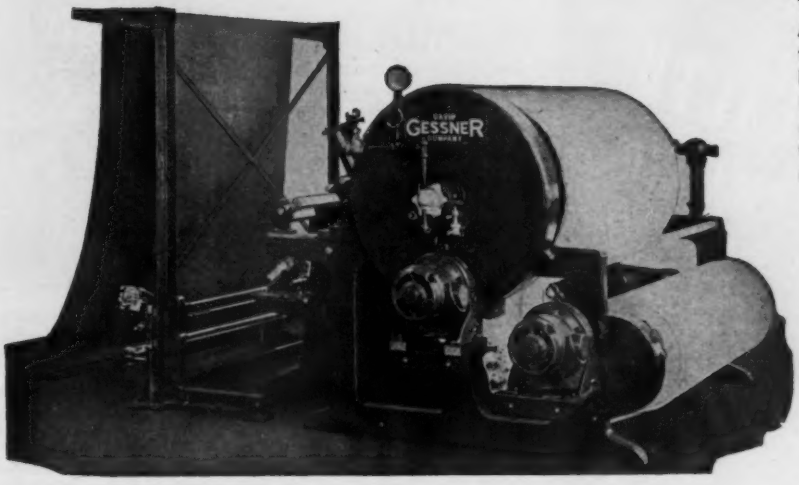
Minneapolis-Honeywell Regulator Co. and its industrial division, Brown Instrument Co., Philadelphia, has opened a district office at 27 Halstead St., East Orange, N. J., which will operate under New York branch office direction. The new district office will be manned by six Honeywell and five Brown sales and service engineers.

Apex Chemical Co., Inc., New York, has added Dr. Henry H. Gilmann to its research staff at the plant in Elizabeth, N. J. He was formerly with City Chemical Co., Glyco Products Corp., and Quaker Chemical Products Corp., as research and development chemist specializing in textile applications.

General Electric Co., Bridgeport, Conn., has appointed William P. Barrett as representative for the Conduit Products Div. in the Cleveland area. George W. Scully has been appointed wire and cable representative in G.E.'s Atlantic district, Philadelphia, Pa.

Harnischfeger Corp., Milwaukee, Wis., has appointed Ralph D. Holcomb as general sales manager. He will direct the sales of all P&H products, excavators, road machinery,

The new Gessner Open Decating Machine Simplifies Operations and Cuts Costs



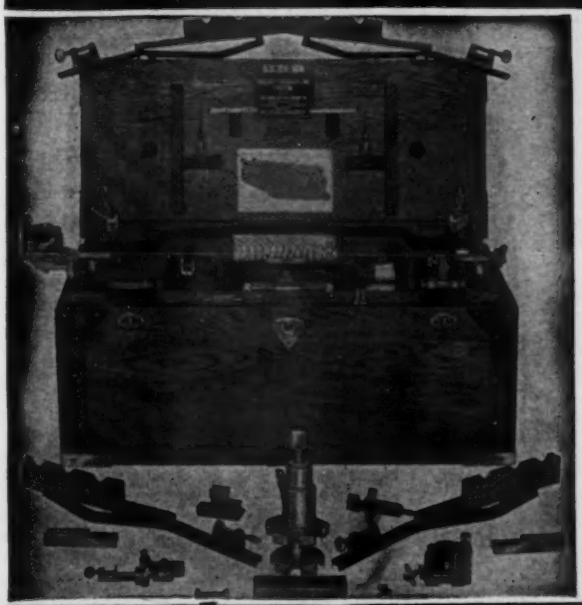
The new Gessner Open Decating Machine embodies important new time and money-saving principles. In fact, Gessner Open Decating has become a one man operation in an ever-growing number of mills. Gessner improvements include automatic tension controls for the decating apron, which prevent apron slap even at high speeds and which greatly lengthen the life of the apron. Mechanisms control the firmness of the decating roll without added tension on the apron. Individual motors drive each cylinder. There are no clutches. The Gessner Open Decating Machine shown here is equipped with a platform and guides to guide the cloth as it is loaded into the machine.

DAVID GESSNER CO.

IMPROVED CLOTH FINISHING MACHINERY

WORCESTER, MASS.

"THE MODERN TREASURE CHEST"



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The system is flexible and is designed to meet the several different requirements of any Cotton, Silk or Worsted Mill

Weekly rental or outright sale. *Free demonstration on request.*

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hoists, cranes, and welding equipment.

Duesberg-Bosson Corp., has bought the Fitchburg, Mass., plant where American Type Founders, Inc., made ordnance during the war. The new owners will employ about 100 and make textile machinery.

The Ranger Co., Walpole, Mass.—Commander Henry J. Barwood, who has been on active duty in the Navy for the last 6½ years, is now associated with The Ranger Co. and its affiliate, Herward Fabrics Co. in their New York sales offices.

Borg-Warner Corp., Chicago, will acquire the Franklin, Pa., steel works of the Chicago Railway Equipment Co. on May 1.

Slaughter, Saville & Blackburn, Richmond, Va., has appointed Charles E. Hill as chief industrial engineer.

Cleveland Worm & Gear Co. and Farval Corp., Cleveland, Ohio, have appointed George F. Heath as district sales representative at St. Louis.

Carrier Corp., Syracuse, N. Y., has appointed John F. Chester as director of public relations. He has been with the Associated Press since 1936; for the last two years as general business editor in New York.

Bernard Color & Chemical Corp., New York, N. Y., has appointed Irwin Wolder as director of its New York application laboratories. Mr. Walder was associated with National Aniline & Chemical Co. for 16 years. He later organized a laboratory for the application of resin-bonded pigments for the Textile Div. of F. H. Levey & Co.

Maple Flooring Manufacturers Association will move its headquarters from Chicago to Oshkosh, Wis., where it will be located at 46 Washington Blvd. after May 1. W. C. Abendroth, of Robbins Flooring Co., Rhinelander, Wis., has been elected president for 1947. L. M. Clady is secretary-manager.

Wilbur & Williams Paint Co., Boston, has appointed John Wild as manager of its Chemical Resistant Coating Division. Due to their expansion over the last few years in this field, it has become expedient to set up a separate division to handle this work. For the last nine years Mr. Wild has been Atlantic Seaboard representative of the American Pipe & Construction Co., Los Angeles.

ALFRED J. YARDLEY, who has been elected president of Jenkins Bros., New York, succeeding his father, Farnham Yardley, who becomes chairman of the board after serving 30 years as president. A great-grandson of Nathaniel Jenkins, the founder, Alfred Yardley joined the firm in 1932 at the Bridgeport, Conn., plant. He is the fourth president in the 83 years of the company's existence. The company has elected James L. Dunn as vice president in charge of industrial relations, and C. C. Chamberlain, the general sales manager, to the board of directors.

Wickwire Spencer Steel Div., New York, has appointed W. T. Stratton as a director of purchases. He will be located at Buffalo, N. Y., and succeeds E. A. Johnston, resigned.

Liquid Conditioning Corp. has moved its main office and plant to Linden, N. J. The new centralized facilities include enlarged departments for designing, testing, research, assembly, and warehousing.

American Lumber & Treating Co., Chicago, Ill., has opened a plant at Baltimore, Md., to alloy wood with creosote, Wolman salts, and Minalith flame-proofing salts. The company recently opened another plant at Florence, S. C., and has eight plants at other locations throughout the country.

Bright Light Reflector Co., Inc., Bridgeport, Conn., has appointed Harry A. Miller, Dallas, Texas, to cover Arkansas, Oklahoma, and Texas.

Textile Testing Ovens

Table model

Eight-Basket Oven—Can be equipped with 8 Baskets—3" x 3" square, and 6" deep; or with 6 Baskets, 4¼" x 4¼" and 6" deep. Sets on table in space of 20" x 40".

Check Yarn Samples for Moisture

Test all your yarn, stock in process, and finished goods—for moisture content—with accuracy. Weighing can be made without opening the oven door.

EMERSON Ovens

Are built in different types to handle wool, cotton and silk. Equipped with baskets to fit the work. Write for details on EMERSON OVENS to fit your process.

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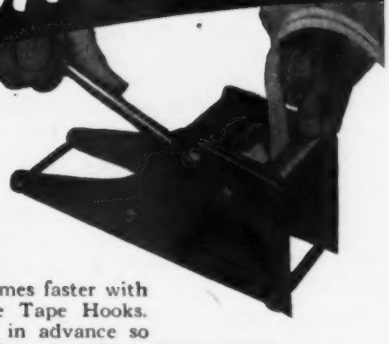

SPINDLE TAPE LACING EQUIPMENT

Lace spindle tapes 10 times faster with Clipper No. 25 Spindle Tape Hooks. Tapes can be prepared in advance so frame is shut down only long enough to place new tape on the pulleys and join ends with connecting pin. Tapes run true—last longer—run smoother—require less tension—VIBRATION IS ELIMINATED

CONDENSER TAPE LACING EQUIPMENT

Lace condenser tapes with Clipper No. 25 Condenser Tape Hooks. Clipper laced tapes, prepared in advance, can be installed in a fraction of the time required for endless tapes. Tape may be purchased in the roll at considerable saving.

CLIPPER BELT LACER COMPANY, GRAND RAPIDS 2, MICHIGAN

Clipper BELT LACING EQUIPMENT

Takes *less* Time

for Loading, Heating, Lacing, Doffing, Cleaning

Gives you *More* Time *for the actual dye runs which build your profit*

AND it pays its way handsomely by cutting water and steam costs lower than ever. Everything *YOU'VE* ever wanted in a dye box has been incorporated in

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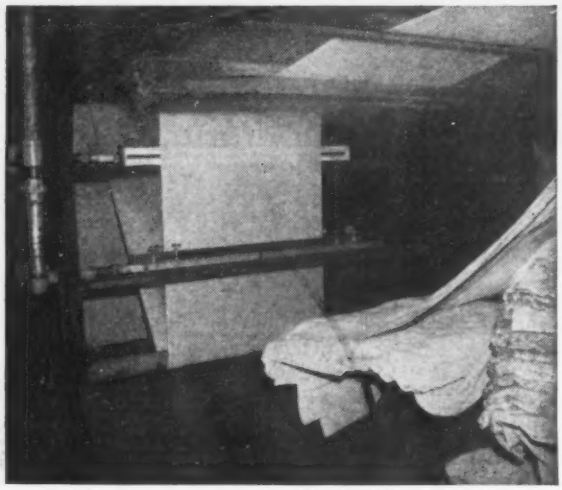
Manufacturers of stainless steel textile equipment, dye boxes, linings, cylinders, dry cans, rolls, hoods, tanks



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Let Southworth help you in making your plans for extra Business and extra Profits. Get the increased production and lower costs made possible by SOUTHWORTH'S new, improved, TEXTILE HUMIDIFYING SYSTEMS.

A new SOUTHWORTH system will give you a simplified design that means better evaporation and more sensitive control combined with exceptionally flexible power.

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NEWS ABOUT *Mills*

Cotton Mill News

Amer-Ind, Inc., New York, N. Y., is shipping the machinery from its Meridian, Miss., plant to Brazil.

American Thread Co., Tallapoosa, Ga., will erect a building containing 11,000 sq. ft. of floor space. The structure will permit the addition of 25,000 spindles to the plant's equipment. Production capacity will be increased by about 140%, and employment will be raised from 315 to about 680.

Anchor Thread Co., Groveville, N. J., has begun the erection of an 80 x 400 ft. one-story mill in Lawrence Township, near Trenton. Cost, including equipment, is reported to be over $200,000. Austin Co., New York, N. Y., has the contract.

Avondale Mills, Birmingham, Ala., has let contract to Dunn Construction Co., Birmingham for a one-story addition to be equipped as a humidifving building. Cost is about $50,000. Avondale will construct a $300,000 pipeline to provide an added water supply for its Pell City mill.

Bocar Mills, Inc., Clover, S. C., has completed a one-story plant which will manufacture combed yarns. Cary C. Boshamer is president of the company.

Cape Cod Weavers, Inc., 10 Thrasher St., Boston, Mass., has been chartered to operate a mill to make cotton and woolen cloth. Bernard I. Nollman is president.

Carolina Mills is the name of the new company which has been established through merger of Abernethy Mfg. Co., Laurinburg, N. C.; Carolina Mills, Maiden, N. C.; Knit Fabrics Co., Hickory, N. C.; and New City Mills Co., Newton, N. C. The firm will be capitalized at $2,500,000. Abernethy Mfg. Co. is being moved to Newton to be consolidated with the New City Mills plant. For this purpose, a large new addition has been constructed at the latter plant. The Hickory plant of Knit Fabrics Co. will also be moved to Newton, where it already operates a plant. The other plants will continue to occupy their present buildings in Maiden and Newton. Julius W. Abernethy, Sr., was elected president of the company. T. P. Pruitt was named vice president and Leonard Moretz was made secretary-treasurer.

Clark Thread Co., Austell, Ga., has begun the erection of a 100 x 565 ft. two-story mill and of a 75 x 330 ft. adjoining warehouse. Cost, including equipment, will be about $500,000.

Cluett, Peabody & Co., Inc., plans to modernize as rapidly as possible its North Grosvenordale, Conn., mill.

Colonial Mills, New York, N. Y., spent $4,152,822 for new plant and equipment during 1946 and expects that an additional $2,400,000 will be required to complete the present modernization and expansion program. The company is diversifying its products into the spun-rayon weaving field and is integrating operations further by establishing a new dyeing and finishing plant at Clarksville, Va.

Dan River Mills, Inc., Danville, Va., spent over $3,000,000 in improving its plants and operations during 1946.

Davidson Mills, Inc., Davidson, N. C., has been purchased by a group of textile executives who will operate it as Davidson Cotton Mills Co. Stockholders in the new firm are Walter F. McCanless, George M. McCanless, and H. N. Fairley, Salisbury, N. C.; Lupine Garcia, Monterrey, Mexico; and Aaron Schindel, New York, N. Y.

Erlanger Mills, Lexington, N. C., has let contract to Potter & Shackleford, Greenville, S. C., for a one-story addition which will cost approximately $100,000, including equipment. This is part of an $800,000 expansion program.

Finewear Mfg. Co., Batesville, S. C., has been incorpo-

WHEN IS ONE MULE 13 TIMES Better?

WHEN IT'S A JOHNSON AND BASSETT MULE, WHICH HAS 13 ADVANTAGES OVER RING SPINNING FRAMES AS FOLLOWS: **1.** Up to 50% saving in labor. **2.** Up to 65% saving in H.P. per equal number of spindles. **3.** Up to 50% saving in floor space per equal number of spindles. **4.** Up to 67% saving in investment per comparable capacity. **5.** The J & B Mule will handle a much coarser roving than a frame, thereby increasing production at the card by 15% to 20%. **6.** The J & B Mule produces a true woolen yarn — superior in strength, elasticity, loftiness, roundness and uniformity of size and twist to that produced by frame spinning. **7.** It permits inspection of the thread. **8.** It will successfully spin short staple roving which will not hold together on a frame. **9.** Spindle for spindle, it will produce as much yarn as a frame. **10.** Its cost of upkeep is exceptionally low. **11.** The J & B filling package does not require rewinding for an automatic loom. **12.** Changes for spinning different types of yarn on the J & B Mule are easily and quickly made. **13.** Mule bobbins cost less than frame bobbins.

Complete details and prices on request.

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DERUSTING
Steel Reeds and Heddles

When steel reeds and heddles become lightly rusted, use the safe, effective Oakite reconditioning technique with water-mixed Oakite Compound No. 36.

This widely-used Oakite method is extremely simple. Merely apply Oakite Compound No. 36 with reed brush. Rust quickly disappears, leaving reeds in excellent condition for re-use.

But Oakite Compound No. 36 is more than a rust remover! The fine crystalline phosphate coating that remains on surfaces serves to discourage further rusting.

Complete details gladly mailed on request. Or if you would like to see Oakite Compound No. 36 at work in your own plant merely phone your local Oakite Technical Service Representative. No obligation.

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for the products of this versatile flat bed warp knitting machine. From dish cloths to curtains, using cotton, worsted, silk, nylon, rayon or woolen yarns. And the completed product doesn't have to be finished, it's ready for the market.

The Cidega loom attains remarkable speed: 10-15 yards per hour, depending on the type of design. Eight weft bars allow for a variety of colors and designs. Produces fabrics from $\frac{1}{8}$ of an inch up, in strips, across entire width of machine.

Smooth and silent in operation. Simple to operate, easy to handle. One operator is able to run from 3 to 5 machines. Automatic stops insure against damage of product.

Tell us your requirements.

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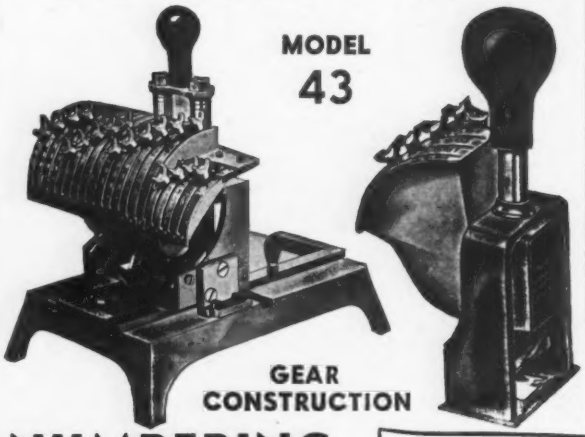
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SPEED SET Machines are used to number and mark industrial tags, labels, tickets, forms and cards. Numbers and letters can be instantly changed to various combinations—all-steel construction—steel engraved wheels—automatic inking—designed with any number of wheels and engraving for your own requirements.
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Perfect Finish—Long Life
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for use in shrinking fabrics to the *"Sanforized"* standard by the Compressive Shrinkage process, are daily meeting the most exacting requirements of finishers throughout the industry. From the lightest and finest fabric to the heaviest denim, there is a special Huyck blanket to meet your specific needs.
Huyck blankets retain high shrinkage and finish properties to the last.
PALMER BLANKETS—also available for your special requirements.
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rated with authorized capital of $100,000 and will begin operations about April 1 in the old Batesville Mill. The plant will make cotton and synthetic yarns. W. Clarence Clinkscales is president and treasurer.

Huntsville Mfg. Co., Huntsville, Ala., has made improvements including interior and exterior painting at a cost of $90,000, refinishing of floors, installation of fluorescent lights in some departments, and enlargement of the machine shop.

Irene Mills, Taylorsville, N. C., recently completed a $500,000 expansion program which about doubled the size of the plant.

The Kendall Co., Boston, Mass., is planning to spend more than $4,000,000 in 1947 and 1948 for modernization and for replacement of machinery and equipment. A substantial part of this amount has already been contracted for.

Nashawena Mills, New Bedford, Mass., has on order new machinery costing about $300,000, of which about $65,000 worth is promised for delivery during 1947.

Nashua Mfg. Co., Nashua, N. H., contracted for the purchase of about $325,000 worth of machinery in 1946.

Nonquitt Mills, New Bedford, Mass., installed new machinery costing about $100,000 during 1946, including an entirely new picker room. The company will continue to make substantial improvements in equipment and operations. Employment has been increased by about 45%.

Pacific Mills, Boston, Mass., made plant additions and improvements in 1946 which cost $5,637,898. The Carrboro, N. C., branch plant was put into operation with equipment transferred there, and an adjoining building was recently purchased in which machinery is being installed. The new worsted plant in Halifax, Va., also went into operation. At the end of 1946, the company had contracts for the purchase of $4,650,000 worth of materials, buildings, and machinery.

Pelzer Mills, Pelzer, S. C., has let contract to Southeastern Construction Co., Charlotte, N. C., for a one-story addition.

Powdrell & Alexander, Inc., Danielson, Conn., plans a program of plant improvement which will involve the expenditure of about $2,200,000 in the next few years. Approval has been granted by CPA for the construction of a 65 x 165 ft. one-story warehouse to cost about $35,000, contract for which has been let to Archibald Torrance, Norwich, Conn.

Springs Cotton Mills, Lancaster, S. C., expects to begin the construction of 200 modern brick homes for employees of the Lancaster plant.

Stretch-Tex Co., Inc., Talladega, Ala., has been organized and will start production in a rented plant. Leonard Roberts, Anniston, Ala., is president, Irwin Stark is vice president, J. G. H. Morris is treasurer, and Lucien Lentz is secretary. The plant will manufacture elastic webbing.

Susco Mills, Inc., Forsyth, Ga., formerly Ensign Cotton Mills, is reported to be involved in negotiations for sale of the mill to unidentified interests. Susquehanna Mills obtained control in 1945.

Wool Mill News

Amoskeag Mills, Manchester, N. H., will spend close to $1,500,000 for new machinery and modernization of its three plants. The biggest outlay is on French combing and spinning machinery purchased in Europe last fall at a cost of nearly $1,000,000. Some of this machinery is due to arrive late in the spring. The company will set up a dyehouse in which two dyeing systems will be installed. One is the Obermaier package-dyeing system and the other is a piece-dyeing system. All the equipment will be of stainless steel and will cost an estimated $150,000. The new dyehouse is expected to be in operation soon. An automatic stripping, cleaning, and conveyor system for cleaning cards has been installed.

Appleton Woolen Mills, Reedsburg, Wis., plans a 40 x 92 ft. one-story addition to expand its finishing department.

Chatham Mfg. Co., Elkin, N. C., has a long-range plan to double the size of its main mill. The project will cost about $1,250,000. The company recently spent about $500,000 for new machinery and construction.

Chippewa Falls Woolen Mill Co., Chippewa, Wis., has re-

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Earn a Manufacturing Profit By Using the Best Machinery and Supplies

DUSTERS
PICKERS
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WOOLEN SPINNING FRAMES
SPOOLERS
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NAPPERS
CARD CLOTHING
NAPPER CLOTHING
GARNETT WIRE
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LEATHER CONDENSER TAPES

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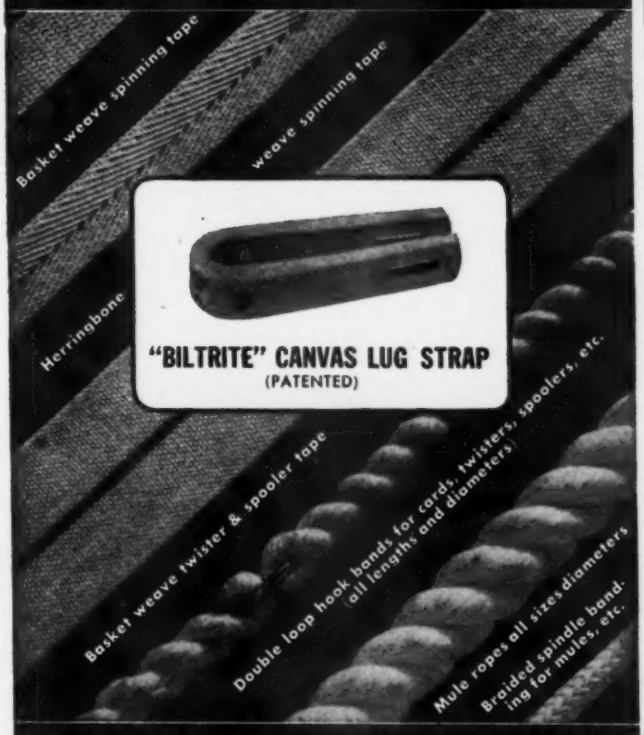
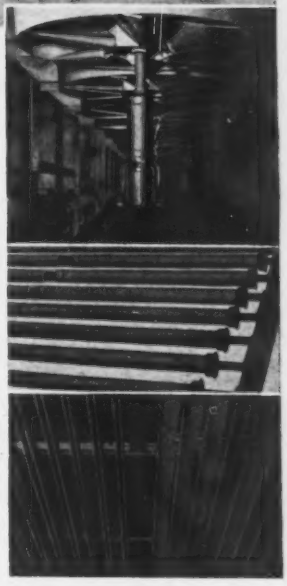
THE ACCEPTED STANDARD

LAMBETH PRODUCTS
FOR SPINNING, TWISTING, SPOOLING, WEAVING


Basket weave spinning tape
weave spinning tape
Herringbone
"BILTRITE" CANVAS LUG STRAP
(PATENTED)
Basket weave twister & spooler tape
Double loop hook bands for cards, twisters, spoolers, etc. all lengths and diameters
Mule ropes all sizes diameters
Braided spindle banding for mules, etc.

LAMBETH ROPE CORPORATION
NEW BEDFORD, MASS., U. S. A.



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Direct motor driven and automatically oil lubricated, these patented aluminum fans generate the *maximum volume of air per unit horsepower*, and assure its continuous, effective circulation throughout the entire drying chamber. They are located in a separate compartment, on either side of the machine, and are easily accessible.

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ceived CPA approval for the erection of a 120 x 150 ft. one-story addition. Cost, excluding equipment, will be $50,000.

DeSager Fabric Corp., Brownstown, Lancaster County, Pa., has begun the weaving of fine wool fabrics on hand looms. Walter DeSager heads the firm.

James Lees & Sons Co., Bridgeport, Pa., has leased 55,000 sq. ft. of floor space in Harrisburg, Pa., in the building formerly occupied by Moorehead Knitting Co. The space will be used for storage and as a shipping point for all the company's orders.

Macon Textiles, Inc., Macon, Ga., is changing from cotton spinning to worsted and is installing 27 new pin drafters developed by Warner & Swasey in cooperation with Uxbridge Worsted Co., Inc., owner of Macon Textiles. This plant has developed a new system of spinning worsted yarn on cotton machines which is unlike the American system, and the company is continuing its research and development. The mill recently completed a new sound-proof, air-conditioned cafeteria which is equipped with fluorescent lighting and which has a movie projection booth, rest rooms, and a small stage.

Mohawk Carpet Mills, Inc., Amsterdam, N. Y., has bought part of the New River Ordnance Plant, Dublin, Va., for $608,601 and will convert it into a woolen-yarn mill. The property includes 319 acres of land and about 100 buildings. The company plans to build on the site a carpet mill which will use the output of the new yarn mill to make carpets. The project will provide employment for over 2,000 people.

Pioneer Worsted Co., New Braunfels, Texas, recently incorporated, has been enlarged and its equipment now includes a scouring train, six sets of cards, and 13 English combs. Robert E. Pent is president. The company had previously been known as Robert E. Pent Top Mfg. Co.

Pola Stout, Inc., is operating a woolen-fabric plant at 2080 East Wheatsheaf Lane, Philadelphia, Pa. Some hand looms will be used to produce special fabrics from hand-spun yarns.

Quabbin Spinners, Inc., Ware, Mass., will engage in wool spinning. Mary E. Powers is president; Florence Manasas is treasurer; and Isabel K. Barr is secretary.

Renfrew Woolen Mills, Renfrew, Ont., will install considerable new and specialized machinery in the first half of 1947. New machinery now being installed includes two cards, four 120-spindle ring-spinning frames, eight automatic looms, a filling winder, and a carbonizing unit.

Rochambeau Worsted Co., Providence, R. I., has commissioned Charles A. McGuire & Associates, Providence, to prepare plans for a one-story weave shed. Louis Le Pontre is president of the company.

Stanley Woolen Co., Uxbridge, Mass., plans a $75,000 one-story addition, for which CPA has granted approval.

Talcottville Woolen Mill, Talcottville, Conn., has been bought by Nodevac Realty Corp. The mill is equipped to make woolen yarn. A 35 x 126 ft. two-story extension is being erected.

Virginia Woolen Co., Middleway, Va., has started construction of a one-story plant which will consolidate the finishing of cloth for the company and its affiliates. Cost of the building and equipment is estimated at more than $1,000,000.

Rayon & Silk Mill News

Aloud Spinning & Weaving Mill is setting up China's first rayon-yarn producing plant near Shanghai. The plant was purchased in France before the Japanese invasion and was hidden during the occupation.

American Enka Co. will install three Worthington 250-ton refrigeration units at its Lowlands, Tenn., plant. They will be used for cooling brine.

Aralac, Inc., Taftville, Conn., is erecting a pilot plant for the manufacture of yarn from peanut protein. Production is expected to get under way within five months.

American Raw Silk Corp., LaVilla, Texas, will receive $65,000 worth of silk-reeling machinery this month.

Carter Fabrics Corp., Greensboro, N. C., has contracted for the purchase of a Worthington 450-ton centrifugal compressor

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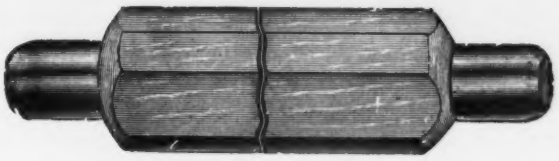

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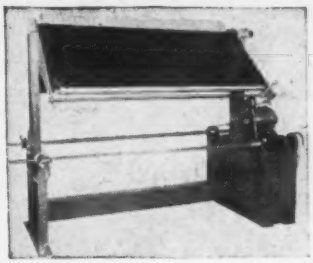

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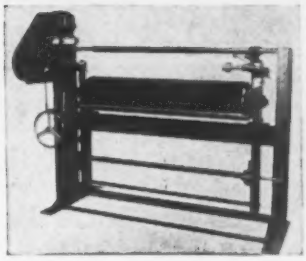

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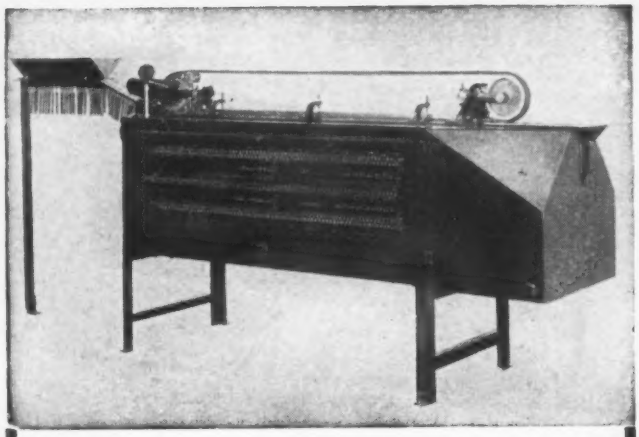

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for air-conditioning service. This is the third such unit to be bought by the company, and similar units will be operated at the Stanley Mills plant in Stanley, N. C. The company will also move its research staff from Shelby, N. C., to the main office in Greenville, N. C. John E. Bell heads this department.

Celanese Corp. of America, Cumberland, Md., has made plant additions totaling over $65,000,000 since 1939. This does not include facilities acquired through merger. Additions during 1946 totaled $20,476,451, compared to $9,986,188 in 1945.

Glass Fibers, Inc., has moved its administrative offices from Toledo, Ohio, to its new plant in Waterville, Ohio.

Hadley Mills Co., New York, N. Y., will start construction soon on a new $1,000,000 silk mill in Taylorsville, N. C., and expects to have it completed in six or seven months. About 300 people will be employed.

Industrial Rayon Corp., Cleveland, Ohio, states in its annual report that its need for additional facilities is more acute now than a year ago, when a construction program was deferred. Work will start on new plant, therefore, as soon as it seems prudent to do so.

Kahn & Feldman, Inc., New York, N. Y., has doubled production capacity by enlarging its plants and installing modern machinery.

Schneider Silk Co., New York, N. Y., is reported to be planning the erection of a silk mill near Taylorsville, N. C.

Textron, Inc., plans to increase the production of French crepe at two of its plants in Suncook, N. H. Approximately $30,000 has been spent for 15 high-speed spoolers which are now being installed. Twenty-eight 64-in. looms are also being installed at a cost of $40,000. Other improvements include a $50,000 evaporative-cooling system.

Knitting Mill News

Bassfield, Miss.—The Board of County Supervisors has let contract to Patrick M. O'Neill, Mendenhall, Miss., for a $37,580 one-story building to be occupied under lease by Bassfield Hosiery Mills.

Belmont Hosiery Mills, Belmont, S. C., is producing women's seamless hosiery in its recently completed new plant. R. David Hall is president of the company, and S. P. Stowe, Jr., is treasurer.

Belvedere Hosiery Mills, Charlotte, N. C., expects to begin operations soon in its new $500,000 plant. J. M. Hatch, formerly with Hatch Full Fashioned Hosiery Co., Belmont, N. C., will be in charge.

Burcon Hosiery Mills, Inc., North Asheboro, N. C., is a new firm with 44 54-gage full fashioned machines in operation. W. N. Jeffries is president of the company, and Howard Moffitt is superintendent.

J. P. Burton & Sons, Griffin, Ga., plans to begin operation of a knitting mill. The plant will be equipped with 20 machines moved from a closed-down plant at Locust Grove, Ga. Children's socks will be manufactured.

Carolina Glove Co., Maiden, N. C., will open a branch plant in Taylorsville, N. C., about April 1 with 50 machines and will eventually double this number.

Cape Hickory Hosiery Mills, Longview, N. C., has moved into a new 40 x 80 ft. building which houses 40 machines. R. S. Parker is the owner.

Durant, Miss.—The city has received CPA approval for construction of a $33,500 nylon-hosiery plant.

Forest City Knitting Co., Ltd., a new firm capitalized at $40,000, is now operating knitting mills in London and Glencoe, Ont. The plants are producing diamond hosiery, heavy ski socks, women's all-wool anklets, and lightweight wraps for men.

Gossett Knitting Mill, Griffin, Ga., is being organized with Homer Gossett, Jr., as manager. Twenty machines were purchased from Fairburn Knitting Mills, which is being closed down. The mill will make fancy cotton socks for men.

Joy Hosiery Co., 531 Chestnut St., Philadelphia, Pa., was gutted by fire with an estimated loss of over $100,000.

Knit-Well Hosiery Co., Hickory, N. C., is a new concern owned by Dr. J. W. Mc-

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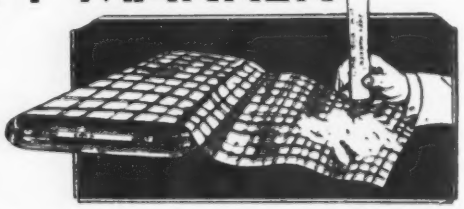

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Kee and James Mauldin. Twenty-nine machines are in operation. G. O. Bunton is superintendent.

Magnet Mills, Inc., which has hosiery plants in Clinton and Lake City, Tenn., is installing new machines and making other improvements. Two hundred 400-needle machines are being installed at the Lake City plant, and many of the old 260-needle machines will be changed to 370 needles. Employement is now nearly 1,000, an increase of over 300 since 1945.

McArthur Hosiery Mills, Carthage, N. C., now operating 24 hosiery machines with 25 workers, has completed negotiations for the purchase of 190 additional machines. Thirty machines will be received every 90 days. Employment will be raised to 125.

Mineral Bluff Hosiery Mills, Blue Ridge, Ga., is a new company which plans to begin operations as soon as machinery can be installed.

Pacific Hosiery Co. recently opened a hosiery mill at 1070 Lynn Valley Road, North Vancouver, B. C. The plant is equipped with 21 machines and is producing men's socks from dyed worsted yarns. V. A. Gillam and T. J. Lynch are principals.

Penman's, Ltd., St. Hyacinthe, Que., recently awarded contract for the erection of a $100,000, 55 x 95 ft., four-story addition which will be used as a warehouse.

Sanders Hosiery Mills, Inc., Burlington, N. C., has begun the production of men's hosiery with 24 machines in a new building containing 28,500 sq. ft. of floor space. Eventually 150 machines will be installed and about 150 workers will be employed. The program will involve the expenditure of several hundred thousand dollars. W. W. Sellars is president, and W. Bowman Sanders is vice president, treasurer, and general manager. Other officials include Homer G. Allen, assistant manager; McBride Albright, superintendent of finishing; Henry Carroll, superintendent of knitting; and Hulon Satterfield, superintendent of boarding.

Sanderson Hosiery Mills, Los Angeles, Cal., has a plant under construction at 11711 West Olympic Boulevard. Floor area will be 5,500 sq. ft. The building is designed for straight-line production with a minimum of handling and will be equipped with the latest-type knitting machines. Lighting will be fluorescent throughout, and heat will be provided by ceiling-type gas blowers. The company will move its operations from its present location in eastern Pennsylvania.

Sytz Fabrics, Inc., Dyersburg, Tenn., has been chartered to manufacture various types of knitted fabrics and will specialize in fabrics for work gloves. Some of the yarns used will be manufactured in the plant. A plant containing 16,000 sq. ft. of floor space will be erected.

Standard Hosiery Mills, Inc., Burlington, N. C., has begun looping operations in a new plant in Pittsboro, N. C. Eargle Eulis is manager. The plant will employ 50 workers when it is in full production.

Textron, Inc., will develop its East Greenwich, R. I., plant into a division confined to the production of tricot-knitted garments. Employment there will be raised from 175 to over 500. Cutting and stitching operations are already under way, and tricot knitting machines will start coming in this month.

Dyeing & Finishing Plant News

Hartsville Dye & Print Works, Hartsville, S. C., has made a number of improvements, including the installation of ventilating, vapor-absorption, and mechanical coal-handling equipment.

Queen Dyeing Co., Providence, R. I., has received bids for boiler-plant alterations, including a new foundation, new plumbing, and masonry repairs. Westcott & Mapes, New Haven, Conn., drew the plans.

Respro, Inc., Cranston, R. I., a subsidiary of United Lace & Braid Co., has filed plans for a 55 x 85 ft. three-story laboratory to cost about $140,000.

Slatersville Finishing Co., Slatersville, R. I., a division of Kendall Co., is planning to sell part of its mill village.

Waverly Dyeing & Finishing Co., Philadelphia, Pa., is now operating in the plant formerly occupied by Universal Dye Works. The latter company moved into new premises.

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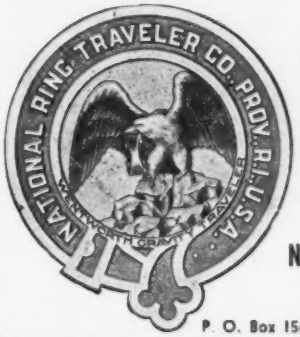

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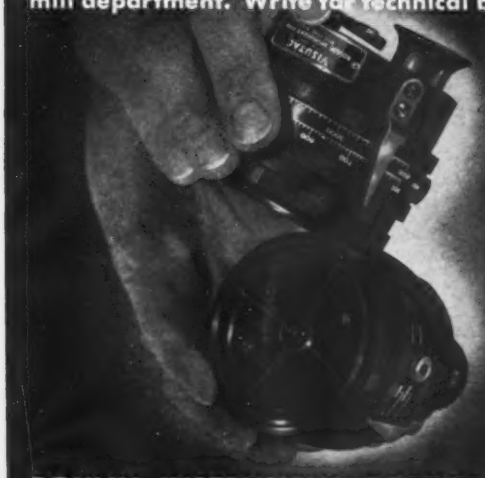

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NEWS ABOUT Men

R. E. Hightower, Jr., has succeeded the late Harrison Hightower as president of Thomaston Cotton Mills, Thomaston, Ga.

Norman E. Randall, vice president and plant manager of Columbia Narrow Fabric Co., Shannock, R. I., has been elected president of that company and of Peace Dale Braid Co., Peace Dale, R. I. He succeeds **George P. Clark,** who becomes chairman of the board of both companies. **Arthur L. Gardiner, Jack Carroad,** and **Francis B. O'Neill** have been elected treasurer, secretary, and assistant treasurer and assistant secretary, respectively, of both companies. **John Bowler** was elected vice president of Peace Dale Braid Co.

Milton Herman has been elected president and treasurer of Statesville Cotton Mills, Statesville, Va. He succeeds his father-in-law, the late John W. Wallace.

Robert Amory has succeeded the late Charles A. Sweet as president of Anchor Rome Mills, Rome, Ga. He will also continue as manager of the Boston, Mass., office of Crescent Corp.

E. L. Thomas, formerly vice president in charge of production at Minneapolis Knitting Works, Minneapolis, Minn., has been named president and general manager, succeeding **Tom E. Kendall,** who became vice president and secretary under the company's rotation policy. **A. B. Shaft** became vice president and treasurer, and **O. H. Bostad** is assistant secretary.

W. J. Irwin, chief executive officer in charge of the Republic Cotton Mills at Great Falls, S. C., has been elected a vice president of J. P. Stevens & Co., Inc.

Ralph W. Conant has formed the new wool house of Conant & Co., Inc., Boston. Mr. Conant is president and treasurer and **Kenneth Hutchins** is vice president and assistant treasurer. Mr. Conant was a partner in the wool firm of Studley & Emery, Boston, from 1921 to 1937, and since then has been president of Emery & Conant Co., Inc., of that city. Mr. Hutchins has been with the last-named house for some time.

W. S. Burrill recently retired as president of Cosmos Imperial Mills, Ltd., Hamilton, Ont. If the present board of directors is re-elected, it will be proposed that Mr. Burrill be named chairman and that **Alan V. Young** become president and managing director of the company. Mr. Young is now president of Hamilton Cotton Co. Ltd., Hamilton.

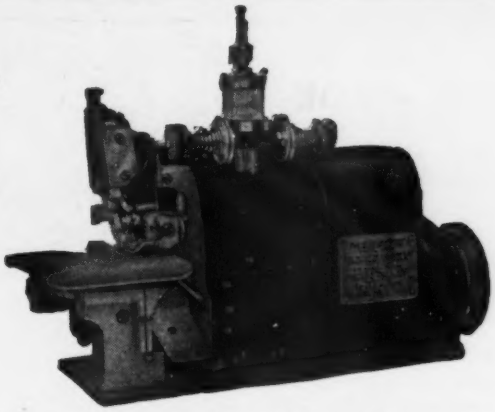
William H. Beattie has been elected president of Woodside Cotton Mills Co. and Easley Cotton Mills, Greenville, S. C. He succeeds his brother, **S. M. Beattie,** who resigned to become a vice president of J. P. Stevens & Co., Inc., New York, N. Y. **W. J. Iselin,** vice president, has become treasurer. **Bennett Rose,** formerly with Victor-Monaghan Co., Greenville, has been named vice president.

F. J. Haywood has been elected president of Travora Mfg. Co., Graham, N. C., to succeed the late Harvey White. **Don S. Holt,** executive vice president, has been named secretary also. **A. D. Tate** is assistant secretary.

Aaron Quinn, formerly vice president and general manager of Cleveland Cloth Mills, Shelby, N. C., has become assistant to **Nick Carter,** vice president of J. P. Stevens Co., Greensboro, N. C.

R. S. Stribling is now in charge of equipment layout and installation for the new Lancaster, S. C., finishing plant of Springs Cotton Mills.

Russell de Young has become vice president in charge of production of the subsidiary



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textile plants and coal mines of Goodyear Tire & Rubber Co., Akron, Ohio. He succeeds **Cliff Slusser,** who recently became vice president and general manager of these operations.

Harry Baldwin has succeeded **Albert J. Owler** as vice president in charge of manufacturing for Verney Corp., Boston, Mass.

R. Smith Payne, formerly with Cluett, Peabody & Co., has become assistant to the president of Alabama Textile Products Co., Andalusia, Ala. He will serve as industrial engineer and technical consultant.

B. P. Albright, formerly with Callaway Mills, Inc., has become vice president in charge of manufacturing for American Yarn & Processing Co., Mount Holly, N. C.

A. Kempton Haynes, of Rohm & Haas Co., has been elected chairman of the Southeastern Section of AATCC for 1947. Vice chairman is **M. T. Barnhill,** of Avondale Mills; secretary **H. M. Waddle** of West Point Mfg. Co.; treasurer **A. J. Morse** of North Georgia Processing Co.

Sidney H. Scheuer, of Scheuer & Co., New York, left early in March for Germany at the invitation of the Secretary of War and General Clay to advise and assist the Economic Div. in the operation of the textile production program. Mr. Scheuer served for 3½ years as the executive director of the Foreign Economic Administration and executive vice president of the U. S. Commercial Co.

Samuel I. Simons, formerly assistant treasurer of United Factors Corp., has affiliated with the California Fabric Co., San Francisco, Calif., as a full partner. He established the west coast credit division for United Factors in 1937. Other partners in the firm are **Harry H. Schwartz, Sidney Deutsch** and **Edgar C. Bretter.**

A. M. Bates has become superintendent of the cloth room at Palmer Mills, Inc., Birmingham, Ala. He formerly held a similar position with Kilby Cotton Mills, Montgomery, Ala.

Fred C. Macdonald has been named sales manager of the Portland Woolen Mills, Portland, Ore., succeeding the late

LEOPOLD S. LEE, who has been appointed managing director of Bruck Mills (Australia), Ltd. Mr. Lee, who is a vice president of the Bruck Silk Mills, Ltd., Montreal, has been associated with the Canadian company since its inception in 1921. Before moving to the head office in Montreal, Mr. Lee had for many years been in charge of operations at the Cowansville plant. He flew to Australia last month, and will make his home there.

R. B. Ambrose. **Fred C. Schultze** has been appointed assistant general manager.

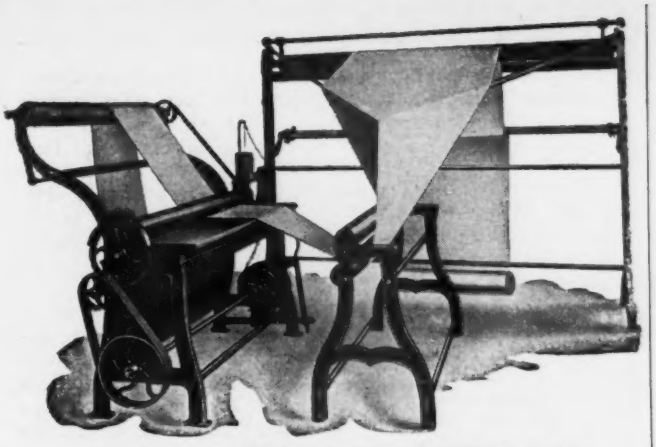
Harold B. Hoskins, of New York, has been elected to the board of directors of Textron Inc., Providence, R. I., and will also be a consultant to the company on marketing and merchandising. After several years with the American Textile Machinery Corp. and Parker, Wilder & Co., he joined Cannon Mills in 1928 and in 1937 became vice president. He resigned from Cannon in August, 1946.

Leonard H. Nellor, formerly superintendent of National Rhea Co., Putnam, Conn., and previously superintendent of National Spun Silk Co., New Bedford, Mass., has left government service after four years as textile inspector for the Jeffersonville and the Boston QM Depots. He lives in New Bedford.

David L. Howard has resigned as general manager of Brookford Mills, Hickory, N. C.

Carl L. Fox, Jr., has been appointed a member of the research chemists staff in the Rome, Ga., plant of Celanese Corp. of America.

Elmer Spence, former night superintendent of Cannon Mills' Plant No. 6, has been named assistant to **M. M.**



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NEWS ABOUT MEN

Payne, general superintendent of weaving. Mr. Spence was placed in charge of weaving at the company's No. 1 plant in Kannapolis, N. C.

James William Donaghy, veteran employee of New York Cotton Exchange, New York, has been named assistant secretary.

A. J. Gould, formerly plant manager at the Philip Weiss Corp., Scranton, Pa., has resigned to become general manager of Westerhoff Fabrics Co., Paterson, N. J.

Benjamin B. Stobin, for the last few years with Cohn, Hall, Marx Co., has joined the sales staff of Native Laces & Textiles, Inc., in its Elastic Products Div.

Standish W. Holmes has been named sales manager of Glen Raven Cotton & Silk Mills, Glen Raven, N. C. He was for 16 years with American Viscose Corp., and lately head of the men's wear department of Everfast Fabrics, Inc.

Torrey M. Tyner has been appointed manager of the Suncook and Pembroke mills of Textron Fabrics, Inc., succeeding **J. Raymond Fish**, who recently resigned. He was superintendent of the Chadwick plant of Textron Southern at Charlotte before coming to Suncook.

Donald J. Bathgate has joined the curtain sales staff of North American Lace Co. at the New York office.

Stanley Hessenberg has been appointed general sales representative to cover the fabric converting trades for Kaback Finishing Co., Inc., Brooklyn, N. Y.

C. L. Bird, M. Sc., F. R. I. C., has been appointed editor of the *Journal of the Society of Dyers & Colorists* succeeding the late Prof. F. M. Rowe, D. Sc., F. R. I. C., F. R. S. Mr. Bird, who was previously assistant editor of the *Journal*, is lecturer in dyeing at Leeds University.

Oliver G. Murphy has resigned as production manager of Dixie Cotton Mills, LaGrange, Ga., to become superintendent of Denison Cotton Mill, Denison, Texas.

J. H. Glover, superintendent of the Heminway & Bartlett Mfg. Co's. Watertown, Conn., plant, has been transferred to executive office in New York where he will devote his time to new product development. **Walter E. Thompson**, Mr. Glover's assistant in Watertown, succeeds him as superintendent.

Richard E. Reeves has resigned as vice president and secretary of Reeves Bros. Inc., New York, N. Y., to devote his time to textile-research work in a plant which he has set up near Madison, N. J.

R. D. McAusland has been elected a vice president of Bemis Bros. Bag Co. He has been manager of the Seattle plant and, since 1941, Pacific Coast general manager.

W. J. Erwin, C. J. Garrett, and **A. J. Sokel** have been elected vice presidents of J. P. Stevens & Co., Inc., New York, N. Y.

W. Earl Smith, formerly owner of Andalusia Textile Mills, Andalusia, Pa., has opened an office as a textile consultant in Bristol, Pa. He is also supervising weaving operations in several Pennsylvania and New Jersey mills for jobbers and manufacturers.

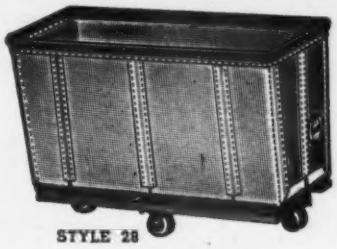
Edward A. Mohr, who had been general superintendent of Nolde & Horst Co., Reading, Pa., has been elected vice president in charge of production.

Robert L. Dawson, formerly with Orr Felt & Blanket Co., Piqua, Ohio, has been named wool-division manager of Beacon Mfg. Co., Swannanoa, N. C.

Jackson A. Woodruff and **Harry F. Creegan** have been appointed divisional heads in the textile-research department of American Viscose Corp., Marcus Hook, Pa. Mr. Woodruff will head the textile-development laboratories, which will be active in research on dyeing and finishing materials and methods and provide testing facilities. Mr. Creegan succeeds **James A. Hopwood** as head of the dyeing and finishing division.

John J. Valter will resign as manager of the finishing division of Brookside Mills, Knoxville, Tenn. His future plans are not yet known.

Herman L. Weisler has re-



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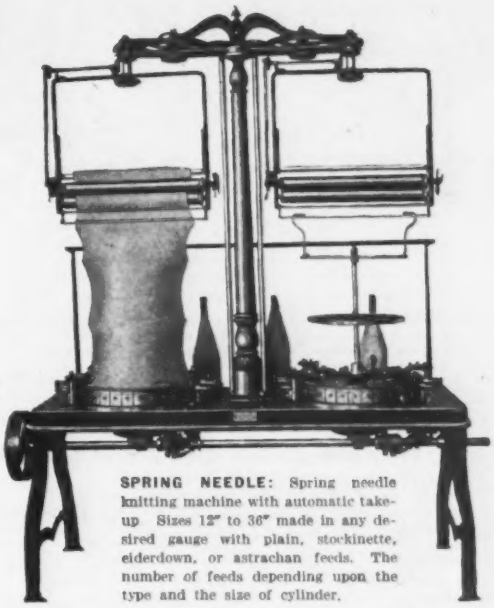

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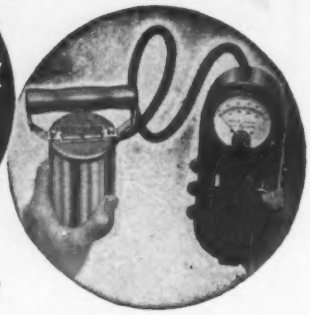

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signed as director of operations of the Hopewell, Va., plant of Celanese Corp. of America.

F. B. Wallis has left the Wartime Prices & Trade Board, Ottawa, Ont., to return to his former duties as general manager of T. Eaton Co., Montreal, Que.

Frederick W. Webbley, treasurer of Nonquit Mills, New Bedford, Mass., has been elected to the board of directors.

W. A. Wolhar has resigned as general manager of the Lancaster, S. C., finishing plant of Springs Cotton Mills. He is now associated with Consos, Inc., Charlotte, N. C.

Philip F. Coburn has been named superintendent of Monument Mills, Inc., Housatonic, Mass., to succeed **Richard J. Steffens,** who resigned. **E. Harry Landberg** has become assistant treasurer, and **Arthur B. Kinne** is now controller.

Norman J. Waugh has become secretary of Dan River Mills, Inc., Danville, Va., succeeding **Wallace Ayres,** who resigned.

Fred C. MacDonald has been appointed manager of the blanket division of Portland Woolen Mills, Portland, Ore., and **Fred C. Schultze** is now assistant manager.

Alfred Wilkinson has been appointed plant manager of Southbridge Finishing Co., Southbridge, Mass., and **William J. Boler** has become superintendent.

Noah F. Gibson has been appointed manager of Pee Dee Mfg. Co., Rockingham, N. C., to succeed **Horace D. Steadman,** who resigned recently.

R. L. Poovey of Burlington Mills Corp.'s Cascade Mill, Mooresville, N. C., was recently named manager of the Dominion Burlington plant in Sherbrooke, Que. He succeeds **C. W. Byrd,** who has returned to North Carolina.

Charles E. Butterfield, formerly resident manager of Manton Mills, Manton, R. I., has become resident manager of National & Providence Mills, Providence, R. I., a unit of American Woolen Co. He succeeds David A. Haig, who retired. **Aldon R. Walls,** superintendent of National & Providence Mills has succeeded Mr. Butterfield.

George Z. Turadian has been appointed general purchasing agent for A. & M. Karagheusian, Inc., Freehold, N. J., succeeding **Robert Banker,** who resigned.

George Clavin has become general manager of Excelsior Mills, Union, S. C.

Obituary

Walter H. Langshaw, 88, former president of Dartmouth Mills, New Bedford, Mass., died at Brookline, Mass., Mar. 19. Born at Eagley, England, he came to America at the age of seven, and was employed two years later as a mill worker at Lawrence, Mass. He became superintendent of the Dartmouth Mills in 1895, president in 1922, and retired in 1933.

George H. Nolde, 53, Reading, Pa., died March 4. He was a son of the late Jacob Nolde, a founder of the hosiery firm of Nolde & Horst, and was associated for many years with his father's firm. More recently, he had been parole officer for Berks County, Pa.

Leo Pollack, 53, a director and former secretary of Max Pollack & Co., thread manufacturers, died Mar. 1 in New York. He was a pioneer in the development of synthetic threads and yarns.

Edwin Judd Seward, 87, former treasurer and director of Royal Worcester Corset Co., died Mar. 1, at Bristol, Conn.

Kenneth Murchison Biggs, 80, president of Mansfield & Jennings Cotton Mills, Lumberton, N. C., for a number of years, died Mar. 13.

Stanford K. Runyon, 73, former president and general manager of Thomas L. Leedom Co., Bristol, Pa., died Mar. 1. He had been with the company nearly 50 years before his retirement some few years ago.

Joseph P. Gaut, 79, president of Holston Mfg. Co.,

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Superior lubrication.
Less fibre breakage.

➡ **SMOOTHER YARNS**
Retain moisture control longer.
Aids artificial control.
Improve spinning.

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More even distribution.
Thorough penetration.

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Decreased oxidation.
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WAK INDUSTRIES
CHARLOTTE, N. C.

in 1913 to become general manager and later president of the Tolar, Hart & Holt Cotton Mills, Fayetteville, died Feb. 16. He was also prominent as a banker and was ordained to the priesthood of the Episcopal church in 1937.

William Robert Cordingley, 88, retired Boston wool merchant and a co-founder of mills in Stafford Springs, Conn., and Woonsocket, R. I., died at Brookline, Mass., on Mar. 6. He entered the wool business in 1874.

Henry M. Sessions, 66, president of Sessions-Gifford Co., Providence, R. I., died at Barrington, R. I., recently. In his early career he was resident manager in Rhode Island for Charles A. Johnson Co., New York; later representative of the Providence Drysalters Co., and then vice-president and manager of the textile division of the Borden & Remington Co. He was co-organizer of the Sessions-Gifford company in 1928.

Alfred E. Lichtenstein, 68, president of Ciba Co., Inc., died in New York on Feb. 24.

Stanford K. Runyon, 73, former vice president and general manager of Thomas L. Leedom Co., Bristol, Pa., died Mar. 1 at Bristol. Mr. Runyon had been with the textile concern for 50 years when he retired 12 years ago.

Barney B. Hayes, 73, president of Hayes Cotton Mills of Lenoir, N. C., and Hudson Cotton Mfg. Co. of Hudson, N. C., and secretary-treasurer of Moore Cotton Mills, of Lenoir and Caldwell Cotton Mills of Hudson, died Mar. 15. Mr. Hayes was engaged in textile manufacturing 60 years and rose from a job as sweeper to mill president.

Harry W. Thomas, 66, sales manager for the Loyal T. Ives Co., New Brunswick, N. J., for 19 years, died recently.

Claude B. Iler, 52, of Greenville, S. C., southern manager for Keever Starch Co., died recently.

Alfred Stell, 80, formerly head of Hall & Stell, Ltd., Keighley, England, died at his home Yorkshire on Mar. 4. For the last few years, Mr. Stell has been a director of Prince-Smith & Stells, Ltd. In former years, he made many trips to the United States.

Bishara G. Handal, president of Knit Style Hosiery, Inc., New York, and four other apparel firms with headquarters in New York died Mar. 2 in Brooklyn, N. Y.

Grover C. Barfield, 63, textile executive of Columbus, Ga., died Mar. 13. He had been connected with Swift Mfg. Co. since his youth, and at the time of his death was vice president.

Edward J. Keegan, 71, part-owner of the Israel Putnam Mill, Inc., Wilsonville, Conn., died recently.

J. Howard Wood, 70, for several years secretary-treasurer of W. B. Davis & Son Hosiery Mills, Fort Payne, Ala., until he went to Lyerly, Ga., to establish and operate his own mill for five years, died Feb. 17.

Joseph Teshon, Sr., founder and president of Joseph Teshon, Inc., died recently at Paterson, N. J.

Milton G. Smith, retired textile engineer and one of the founders of the Southern Textile Exposition, died in Greenville, S. C., Mar. 11.

Samuel N. Selman, executive vice president for the last 18 years of the Fox Chase Knitting Mills Rockledge, Pa., died Mar. 14.

William Roth, 44, a partner in Roth & Co., and associated with the firm for 25 years died recently.

Grover C. Barfield, 63, vice president of Swift Mfg. Co., Columbus, Ga., died Mar. 13. He joined the company as a young man; was elected secretary in 1918; a director in 1922, and vice president in 1937.

Hugh A. Galt, chemical industrial leader, died recently in Akron, Ohio. He is credited with building the first alkali plants in Michigan and Texas. He built the J. B. Ford chemical plant in Wyandotte, Mich., and served as general manager until 1899. He also had been general manager of the Southern Minerals Corp.

Harold Schroeder, 52, owner of the Morningside Chemicals Co., Chattanooga, Tenn., died Mar. 12. In 1926, he became head chemist for the Dixie Mercerizing Co. and established his chemical company in 1935.

PENICK & FORD, LTD.
INCORPORATED
CORN STARCHES, DEXTRINES, GUMS, CORN SUGARS & SYRUPS
NEW YORK, N. Y. - - - - CEDAR RAPIDS, IOWA
SOUTHERN OFFICES: ATLANTA, GA. - - - - SPARTANBURG, S. C.

John:
Douglas Crown Thin Boiling Starch is made in all fluidity ranges to suit each individual mill's requirements. Let's arrange for a trial order of the type recommended for our purposes.
Jim

MURDOCK Bobbin Holders

Two exclusive features Affording Long Life

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We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins.

Holders for all types of mules, frames, twisters and winders.

MURDOCK & GEB CO., Franklin, Mass.
Manufacturers of Bobbin Holders for Over Fifty Years

WE'VE LEARNED A LOT IN OUR 50 YEARS

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

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INCORPORATED
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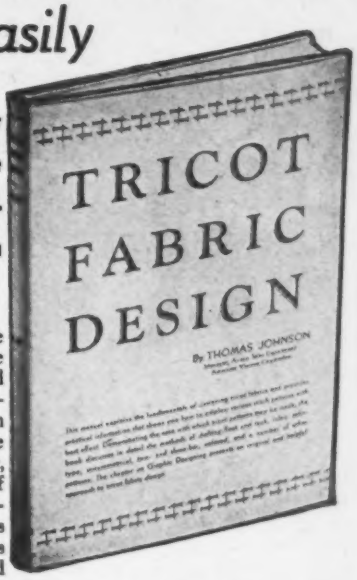
Caldwell TANKS and TOWERS

How to design tricot products *swiftly--easily*



Let this manual show you, step-by-step, the design of tricot fabrics in varying stitch patterns

Here's a compact, complete design manual showing the fabric designer, quickly and simply, the methods of designing tricot fabrics in varying stitch patterns. The manual demonstrates, first, the basic fundamentals of tricot fabric design. It describes how the fabric is formed, and the various stitch-making elements and their functions. It supplies diagrammatic descriptions of the actual machine process. The manual then provides a simple, easily understood *method* of drafting tricot patterns, demonstrating the ease with which tricot patterns may be made. Methods of drafting various types of stitch patterns—pique and corduroy, meshes and nets, gaiting, float and tuck, inlay, etc.—are included.

Just published!

TRICOT FABRIC DESIGN

By THOMAS A. JOHNSON
Manager, Aveco Sales Department, American Viscose Corporation

124 pages, 5½ x 9, 79 figures, $2.50

This manual supplies the basic design data and drafting methods that will enable you to explore all the possibilities of the tricot machine. It provides simply worded explanations and scores of careful diagrams illustrating actual drafts of various stitch patterns, covering all the basic elements of tricot fabric design.

The manual makes each machine factor that affects pattern design crystal clear, and points out such elements as the use of adjustable pattern wheels, or "stud wheels", how to increase the number of steps usable on the pattern wheel, and the possibilities of patterns including two-needle laps under the beads. It covers in short, concise chapters, a wide variety of possible stitch patterns, including single-, two-, and three-bar patterns.

Here are some of the details of pattern design the manual supplies:

—stitch-making elements and their functions
—how the pattern wheels function
—description of wales, courses, revolutions and laps
—how to draft the patterns
—description of the warping operation
—demonstration of open and closed stitches
—possibilities for three-bar patterns
—requirements in drafting colored patterns
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—how to prevent runs and splits

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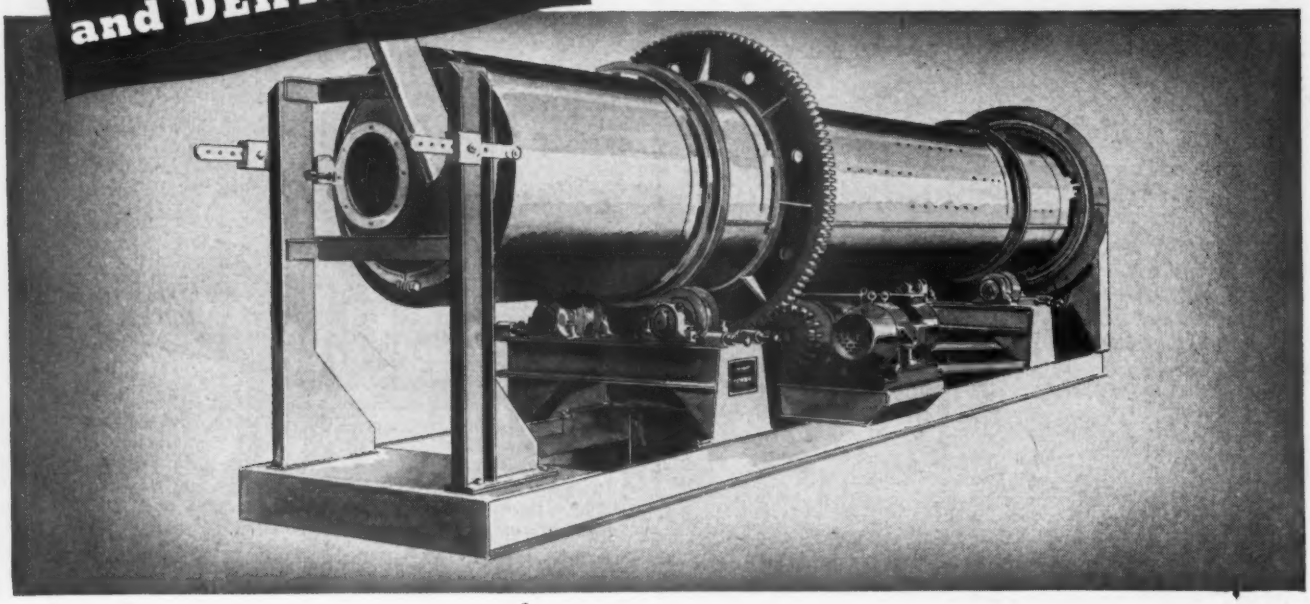
MANY TYPES MANY USES



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Room type, electrical and other than electrical	• Chicago, San Francisco
Vacuum types, electrical and other than electrical	• Chicago, New Orleans, New York, Richmond
Tunnel dryers and dehydrators, electrical and other than electrical	• Boston, Chicago, Detroit, Kansas City, Los Angeles, Minneapolis, Philadelphia, Richmond
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NEW ADVERTISEMENTS received by 10 A. M. April 29th will appear in the May issue, subject to limitation of space available

POSITION AVAILABLE

A small highly successful Cotton Finishing Plant with an excellent reputation for quality has an opening for a man to take full charge of the operating end of the plant. He should have the following qualifications:

35 to 40 years old.

A Technical education or College graduate.

A thorough knowledge of Bleaching and Finishing both narrow and wide fabrics.

Now employed in a supervisory or executive position. He must be successful in his present position and will only change to better present position and future possibilities.

P-169, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

A young man as assistant designer in modern equipped western woolen mill.

Must be textile school graduate, prefer man with some experience. Must be ambitious and desirous of learning practical manufacture of woolen fabrics. Excellent opportunity for the right man.

Give complete qualifications as to education, age, experience and references.

ROCK RIVER WOOLEN MILLS

Janesville, Wisconsin

POSITIONS VACANT

HAND LOOM Operator to set up, install, and instruct in operation of hand looms. State salary and experience. Ainslie Knitting Machine Co., 750 Grand St., Brooklyn, N. Y.

TEXTILE ENGINEER needed by large Eastern Industrial Corporation. Work involved is specialization in Textile Machinery, particularly yarn windup, packaging, etc. Job requires extensive experience and creative ability along machine development lines. Textile school graduate desired or Mechanical Engineer from an accredited college with textile machinery experience. Prefer age 28-35 years. Salary will be commensurate with applicant's general abilities along developing lines. In application include age, education, experience, and expected salary. P-140, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: LOOMFIXER foreman on velvet looms for mill situated in the South. Steady position, excellent wages, and fine opportunity for advancement. Only those experienced on velvet need answer. P-125, Textile World, 330 W. 42nd St., New York 18, N. Y.

MANAGER WANTED: Experienced throwster familiar with nylon throwing technique for ladies full fashioned hosiery. P-173, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED—TEXTILE Engineer with college training and some practical mill experience, to operate a small plant in South Carolina making sample fabrics and carrying on development work for a large concern. A person interested in experimental lines as well as having supervisory ability desired. Please give full particulars in first letter. P-174, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: GROWING southern textile school desires man with textile degree to teach design and weaving courses. Practical mill experience desirable. Excellent opportunity for qualified person. Reply stating training and experience. P-176, Textile World, 330 W. 42nd St., New York 18, N. Y.

HEAD DYER Wanted: Experienced in dyeing piece goods made of all fibers, cross dyes and elastic fabrics. Factory vicinity New York. State salary, experience, etc. Strictly confidential. P-176, Textile World, 330 W. 42nd St., New York 18, N. Y.

Additional Employment Advertisements on page 316

WANTED
TEXTILE WORKER

Young man, not over 30, with degree in Textile Engineering from accredited textile school. Must have as minimum experience, 1 year in textile mill and 1 year in fabric development, or similar undertaking. In order to qualify for position of Fabric Development Man with nationally known textile manufacturing company, applicant must supplement knowledge of textile designing with creative interest in designs and fabrics. Location of job, New York City. If interested, please send resume, giving complete details of educational and experience qualifications to

P-166, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED
Cutting Room Foreman

One who is familiar with quality lingerie. Give full information as to experience and other qualifications.

Write—"Cutting"
c/o Textile World
Rhodes Haverty Building
Atlanta, Georgia

MEN WANTED
POSITIONS OPEN

Superintendent weaving and warp preparation narrow fabrics (ribbon)
Woolen and worsted cloth and yarn superintendents
Assistant superintendent rayon weaving mill (Canada)
Superintendent full fashioned hosiery mill (South)
Superintendent tie fabric mill
Worsted yarn superintendent $8,000-$10,000
Cotton research man, fibres and cloth, splendid salary
Worsted goods designer and styler, N. Y. City
Superintendent cotton rayon weaving (South) $100 wk.
Overseer Cotton Spooling, Winding, Warping, Twisting (South), $80-$90
Supervisor narrow fabric weaving
Superintendent for roller and screen printing plants
Man to set up worsted mules and take charge
Dyer and finisher tricot fabrics
Woolen carder and spinner and woolen dyer and finisher for Peru
Chemist, chemical engineers and laboratory assistants
Textile engineer for drafting and maintenance work
Overseer woolen finishing
Woolen carders $65 to $110 week
Cotton piece goods dyer $80 to $110 week
Textile school graduates for cotton carding and spinning and weaving departments
Cotton designer, shirtings
Overseer cotton carding (South) $75 week, free house and other concessions
Jacquard designer and card cutter
Worsted cloth designers and assistant superintendents
Industrial engineers and time study men
Textile school graduate to learn mill business
Overseer cotton carding, spinning, twisting and winding (South)
Boss cutter Southern underwear mill
Power plant superintendent (South) $6,000-$8,000
Overseer worsted yarn spinning
Textile school graduate to learn dyeing
Weave room second hands, cotton and rayon
Overseer cloth room and shipping
Narrow fabric loom fixer, chain head looms $65-$70
Wildman and Brinton knitting machine mechanics-fixers
Loom fixers for all lines of textiles $1.00-$1.75 hr.
Fixer paper fibre rug loom $60-$80
Fixer Banner Wrap reverse machines
Silk loom Fixer (Canada)
Second hands, Fixers all departments

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Boston, Mass.
Over 45 Years Confidential Employment Service for Textile Mills

TEXTILE MILLMAN WANTED

Executive type capable of designing and constructing knitted wool coatings from raw stock to finished cloth . . . substantial salary and fine opportunity for a future with an expanding and progressive mill. Write stating full qualifications and background.

P-138, Textile World
330 West 42nd St., New York 18, N. Y.

TEXTILE SCHOOL GRADUATE
As Assistant to plant manager

In modern rayon weaving mill. Pennsylvania location, good opportunity long established firm. State complete background, qualifications, and salary. Our employees notified of this advertisement.

P-151, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED SUPERINTENDENT OF DYE HOUSE AND FINISHING DEPT.

Newly erected plant in Pennsylvania has splendid opportunity for boss dyer, who is fully versed in the dyeing of sheer and of solid fabrics; in particular, laces and tricots. Must know cotton, wool, and synthetic dyes; also cross dyes. Experience in finishes desirable. Please give complete details in first letter. Fullest confidence assured.

P-190, Textile World
330 West 42nd St., New York 18, N. Y.

TEXTILE TECHNICIAN

WANTED BY MANUFACTURING CONCERN NEAR NEW YORK. STATE EXPERIENCE AND SALARY EXPECTED. SPLENDID OPPORTUNITY FOR RIGHT PERSON.

P-188, Textile World
330 West 42nd St., New York 18, N. Y.

POSITIONS WANTED

(Continued from page 315)

EXECUTIVE'S ASSISTANT: Phila. Textile Institute graduate with 13 years practical experience in shaft and Jacquard fabrics. Well versed in fabric designing, layout, costing analysis, production control and mill management. 33 years of age. Apply PW-936, Textile World, 330 W. 42nd St., New York 18, N. Y.

PERSONNEL MANAGER. Many years practical experience in Southern Textile Plants plus recent college course in modern personnel management. PW-141, Textile World, 330 W. 42nd St., New York 18, N. Y.

SERVICES AVAILABLE young man with 18 years experience as textile designer and 5 years experience in mechanical engineering, highest recommendations. Desires position of responsibility with progressive firm. PW-142, Textile World, 330 W. 42nd St., New York 18, N. Y.

PRODUCTION MAN with mill, technical and commission weaving experience desires change of position. Conversant with Jacquard and shaft fabrics in NATIONAL and synthetic, costing and converting including prints. Reliable, with record of proven ability. PW-143, Textile World, 330 W. 42nd St., New York 18, N. Y.

KNITTER MECHANIC with Supervisory ability, experienced in knitting of rayon or cotton, on Wildman Spring Needle, Wildman Latch Needle, Supreme and Brinton. Good manager of help. Can furnish references. PW-177, Textile World, 330 W. 42nd St., New York 18, N. Y.

LABOR RELATIONS: Attorney, Economist with 15 years experience in government regulation of labor and industry; formerly Assistant to Wage Hour Administrator and to Industry Member of WLB Fact Finding Commission; now with Industrial Engineering Company, desires connection with industrial concern in East or Southeast. PW-178, Textile World, 330 W. 42nd St., New York 18, N. Y.

COLORIST-CHEMIST, Screen-Printing; thorough knowledge all phases of rapidogens and indigosols. Considerable experience with chromes, acetates and directs. Textile Institute graduate. Age 30. Presently employed New England. Seeking responsible position with progressive firm, any location. PW-179, Textile World, 330 W. 42nd St., New York 18, N. Y.

MIGHT BE Available to concern who knows its needs. Thirty seven (37) years of age. Eighteen (18) years of manufacturing experience, both hard and soft goods. Chief industrial engineer for ten (10) years. Interested only in interview with prospective employer. PW-180, Textile World, 330 W. 42nd St., New York 18, N. Y.

AVAILABLE

GENERAL SUPERINTENDENT

23 years experience on furniture upholstery

Expert on set-up, operation and maintenance of all types of machines for the manufacture of pile and tapestry fabrics as well as dyeing, finishing, etc. Specialist on looms, foreign and domestic. Able to design and set up upholstery fabric. Knows sources of new and used machinery and is thoroughly experienced with purchase of machines, materials and supplies. Presently employed as general superintendent but wishes to make change.

Wishes to set up and operate a new mill or a position as general supt. of mill. Salary and bonus based on production and/or quality.

PW-172, Textile World 330 West 42nd St., New York 18, New York

Overseer of Weaving Available

Eighteen yrs. experienced on C&K automatic looms also drapers, on fancy woolens, worsted and cottons. Will consider second hand job on day shift. Age 43, married, A-1 references.

PW-153, Textile World
330 West 42nd St., New York 18, N. Y.

Available—Pile Fabric and Tapestry

MILL SUPERINTENDENT

Over 20 years experience in manufacturing. Thorough knowledge of all operations and equipment. Capable administrator — production, quality and cost conscious. Excellent labor relations. Textile school and mechanical eng. background.

PW-187, Textile World
330 West 42nd St., New York 18, N. Y.

WORSTED YARN SUPERINTENDENT

(Bradford System)

Desires change for excellent reasons. Has had 25 years experience on all counts and grades of yarns for carpet weaving and knitting in single and ply yarns. First class references as to ability. Can handle help and get results. For interview write

PW-134, Textile World
330 West 42nd St., New York 18, N. Y.

POSITIONS WANTED

SCREEN PRINTING Supervisor, reliable, energetic and efficient. Executive ability. 10 years experience in first-class dress goods and draperies. Can achieve maximum production with a minimum of 'seconds'. Available soon. PW-181, Textile World, 330 W. 42nd St., New York 18, N. Y.

OVERSEER OF Weaving or assistant superintendent. Textile school graduate. 22 years experience woolens and worsteds. Expert automatic loom-fixer. Age 38. PW-183, Textile World, 330 W. 42nd St., New York 18, N. Y.

TEXTILE TECHNICIAN, 36, wide experience in cotton spinning. Also experience, plant erecting trough production. American and European machinery knowledges. Can furnish references. PW-184, Textile World, 330 W. 42nd St., New York 18, N. Y.

GRADUATE ENGINEER with considerable experience in industrial relations and engineering, time and motion study, incentive plans, job evaluation, labor disputes, union contracts and arbitration in textile and related industries, desires change. Prefer South. Address PW-185, Textile World, 330 W. 42nd St., New York 18, N. Y.

SELLING OPPORTUNITIES WANTED

WHOLESALE DISTRIBUTORS and importers occupying their own building seek for import into Canada all types of dress trimmings, textiles, braids and laces, buckles and buttons. Highest of references both banking and trade will be given to interested parties. RA-148, Textile World, 330 W. 42nd St., New York 18, N. Y.

Business Opportunity and Wanted Advertising on page 318

Woolen Manufacturers

EXPORT TO EUROPE

Available man recently returned from extensive European business trip establishing agencies and selling textiles. Expert linguist. Good knowledge of economic conditions and export routine. Excellent foreign connections. Will travel to Europe to sell and establish agencies there for your woolen products.

SA-159, Textile World
330 West 42nd St., New York 18, N. Y.

SALES REPRESENTATION

"Young man familiar with textile processes and managing personnel of manufacturing and finishing plants in the Carolinas wants sales representation contract with reliable machinery or supply manufacturer. Ability can be shown by past sales records in this field—Confidential."

SA-993, Textile World
330 West 42nd St., New York 18, N. Y.

REPRESENTATION FOR BRAZIL

Wanted by large Brazilian company for American Textile Machinery and Accessories. Will also purchase Accessories for stock.

Please write to:

TECNICA E COMERCIAL SANTA LUZIA LTDA.
CAIXA POSTAL, 2670 SAO PAULO BRAZIL

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Consultants on Textile Machinery

Complete Installation and Operation of Cotton and Wool Spinning Plants
Also, Machinery and Supplies for Weaving, Spinning & Twisting.
Languages—Spanish & French.
92 Fulton St., N. Y. 7, N. Y.

ROBERT WILKINSON
Fabric Designing Service

Analysis of yarns and fabrics.
Plain, dobby and boxloom weaving drafts made from cloth or written information.
Jacquard designs made from cloth or sketches.
34 Bank St. New Bedford, Mass.

Washington DIDN'T sleep here...

but he was mighty interested

IN 1789 GEORGE WASHINGTON visited the first Cotton Mill in New England, at Beverly, Mass., and wrote in his diary: "The cotton stuffs they turn out are excellent . . . warp and filling both are now cotton." A pair of horses (driven by a future Member of Congress) furnished "2 hp.," and the "Super" was constantly shouting "Faster!" or "Slower!" all day long. The first known textile trade-mark, a lead label, was affixed to the products of this mill; and they were also the first textile goods advertised in this country.

Picture from "The Story of Textiles"

MLC SERVING THE TEXTILE INDUSTRY MLC

1—C&M 2-cylinder Brushing machine 72"
3—Button Breakers, 2-48", 1-50"
2—45" Textile Finishing Machine Co. 6-bowl Calenders
2—54' x 60" D&F 2-cylinder iron Shoddy Cards with feeders
1—Lot Numerous Card Parts
1—60" P&W Doubling, Boarding and Winding Machine
1—90" P&W De-Specking Machine
1—Set 8 Textile Vertical 48" x 23" Dry Cans
1—Set 20 H.P. Butterworth 108" Dry-cans, dryer
1—Reeves Drive, Range 3-1, Size 6, Class G
1—54" x 54" Taylor Wadsworth Batch Type Waste Duster
1—18" Copper Basket Extractor
2—36" Tolhurst Extractors, belt driven
1—30" American Laundry Extractor
7—40" and 60" Tolhurst Extractors
1—45" Dobson & Barlow Cotton Feeder
4—40", 42" E&H Flat Folders with take-up stands
1—100" C&M Flat Folder, motor driven with hydraulic lift and roll-up stand
15—10", 80" Card and Napper Grinders
6—40" Draper Model X Automatic Looms, 45" reed space, lacey tops, with motors
200—40" Draper K Dobby Looms
2—45½" C&K 4 x 1 Dobby Looms, motorized
12—54½" C&K Box Dobby Looms
24—44" Stafford 49½" reed spacer Dobby Shuttle Change Looms, with motors
110—45½" reed space Modified E Draper Looms with lacey tops 3 bank stop-motions, warm take-up, belt driven
1—48" C&K 4 x 4 box Loom, 25 harness, belt driven, friction clutch
2—72" Heavy Duck Looms, roller top, 2 harness
14—82" C&K 2 x 1 automatic Looms, 8 harness cam motions, motor driven
1—92" C&K 4 x 4 Box Looms, 25 harness, friction clutch drive

COMPLETE MILL UNITS
A Six Set Woolen Yarn Mill
A Woolen Piece Goods Dyeing & Finishing Plant
48 Loom Rayon Weaving Plant—44" & 46" Looms, etc.
20 Loom Rayon Weaving Plant—46" & 52" Looms, etc.

10—92" C&K, 4 x 1 Automatic Looms, 8 Harness, Cam Motion Motor Driven
1—44" C&M Measuring Machine, 60 yd. dial
1—64" P&W Measuring and Woolen Cloth Winder
1—66" x 23" P&W 60 yd. Measuring Machine, sanded roll, belt driven
1—66" x 24" P&W AWC Measuring and Folding Machine, 100 yd. counter and folder
3—60" Measuregraph Machines with clocks
1—70" King & Gerber Tubing Machine with Veeder-Root counter
1—392 Spindle Smith 2" Gauge Mule
2—240 spindle D&F 2" gauge, 10 jack spool Drums
4—240 spindle J&B 1⅞" gauge Mules
1—12 Pole Smith Drum Skein Mercerizer
75—New Leland 1+ HP 3/60/220 V Heavy Duty Motors
27—New ½ HP 3/60/220 V Motors Also various size Rebuilt Motors
1—61" Woonsocket 2-cylinder Napper, 20 rolls to each cylinder, gear driven rolls
1—66" Gessner 16 roll single cylinder Napper
1—72" Gessner 18 roll single cylinder Napper
1—80" Woonsocket 44 roll double acting Napper
4—80" D&F 20 roll Single and Double Acting Nappers
1—30x 30" Mezzera Wool Opener with grid and 25" feed apron, wire good
1—45" 2 roll Padder, rubber rolls

2—40" Kitson Breaker Pickers, motorized
3—40" Kitson Finisher Pickers, motorized
4—40" Kitson Single Process Pickers
1—42" Oldham Fearnaught Picker
2—48" Parkhurst Burr Pickers
2—48" C.D. Sargent Burr Pickers
1—54" Werner Single Color Printing Machine
6—52", 35½", 66", Voelker and Gessner Single and Double Bed Rotary Cloth Presses
10—50 spindle Lindsey-Hyde Adjustable Reels
1—60" P&W Single Blade Smooth Woolen Shear
1—60" C&M Single Blade Plush Shear
2—60", P&W Single Blade Woolen Shears
11—65⅛" P&W 2-blade Shears, Model B
1—76" C&M Double Blade Shears
1—80½" P&W Single Blade Shear
1—32" Grand Rapids 2-knife Knit Goods Slitting Machine
1—42" Grand Rapids 20-knife Slitting Machine
1—42" C&M Singer with hood
3—Lowell 2-cylinder Slashers
4—252 spindle Whiting 2" ring, 3" gauge, tape drive, long draft spinners
1—32½" D&F Jack Spool Winder
6—Smith and Furbush Spoolers, 44" drums, 48 ends, 44½" long spools with 10" head. Complete with spool stands
1—60" C&M Single Brush Tiger
5—80 Spindle Hopedale band driven twisters 4½" ring, 5½" ga. Belt driven
4—8-string Hemmer Wool Washers
1—80 Spindle Foster Tube Winder
5—100 spindle Foster Model 21A Tube Winders
2—60" P&W Winders with stencil attachment
1—100 Spindle Foster Model 12 Tube & Cone Winder

MACHINERY LIQUIDATING COMPANY
OPA REGISTRATION NUMBER 789
EST. 1923
31-33 West 42nd Street MLC NEW YORK 18, N. Y.
DOMESTIC TELEPHONE PEnnsylvania 6-8014 EXPORT
SPECIALISTS IN SELLING AND PURCHASING TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

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WANTED

STRIP MINE WITH EQUIPMENT OR MODERN MECHANIZED DEEP MINE NOW IN OPERATION. ONLY LARGE ACREAGE OF STRIPPABLE OR DEEP MINE COAL CONSIDERED. INTERESTED ONLY IN AMORTIZING THROUGH TONNAGE. CAN FURNISH EXCELLENT REFERENCE AND CREDIT RATING. PREFERENCE WEST VIRGINIA OR EASTERN KENTUCKY. REPLIES HELD IN STRICTEST CONFIDENCE.

BO-186, Textile World,
330 West 42nd St., New York 18, N. Y.

WANTED FOR EXPORT

WORSTED SPINNING EQUIPMENT

ITEM 1—6 TWIN CYLINDER WORSTED CARDS 60" wide fitted with double deburring rollers and clothed suitable fillet for 64S 70s quality wool. These cards to be fitted with can carders and individual drives and motors wired for 380 volt, 50 cycle, 3 phase AC supply.

ITEM 2—30 FRENCH or SCHLUMBERGER COMBS wide model and fitted with individual drives and motors.

ITEM 3—2 PREPARATORY INTERSECTING GILL BOXES, three finishing intersecting gill boxes and two two-bowl air type backwashing machines. Each backwasher fitted with two head two-bowl gill boxes and complete with individual drives and motors.

FELTA COMPANY, INC., 145 W. 57TH, N. Y. C.

LOOMS WANTED

Ribbon looms, Fletcher or Schaum & Uhlinger 15'8" or 18', 40 to 70 spaces, overhead castle, warp rack, individually motorized and automatic letoff preferred. Principals only. Answers will be kept confidential.

W-152, Textile World
330 West 42nd St., New York 18, N. Y.

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WORSTED SPINNING PLANT

1500 SPINNING SPINDLES

SOME NEW MACHINERY

May be operated at present location on long term lease.

NO UNION, NO LABOR TROUBLE

BO-171, Textile World
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UNIVERSAL WINDERS

One spindle machine capable of making 10" x 10" tube.

PILGRIM RUG CO.
126 Front Street Pawtucket, R. I.

WANTED

SPINDLE MACHINES

One spindle machine capable of winding 8"x10" or 10"x12" tube. Also machine for winding 8/8 yarn on 2 oz. wooden spools.

CONTINENTAL CORDAGE CO.
399 Elizabeth Ave. Newark 8, N. J.

WANTED •

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Large financially powerful diversified organization wishes to add another enterprise to present holdings

CASH PAID

For Capital Stock or Assets Existing Personnel Normally Retained

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WANTED

TWISTERS

Double Roll Novelty Twisters 3½" or 4" Pitch, 2½" to 3" Ring. State Age, Condition, Number of Spindles and price including bobbins.

W-101, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

WORSTED SPINNING EQUIPMENT

(Bradford oil spinning type)

Modern machinery with a capacity of approximately 4000 lbs. 2/32s 64s for 40 hour week. Soonest delivery important. Cash Deal. Reply with fullest details to

W-192, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

Printing Machine

Textile Roller for goods 42" or over. Not less than 3 colors. Must be in good working condition. Also piece goods dryer.

W-163, Textile World
330 West 42nd St., New York 18, N. Y.

8 and 10 Gauge Fully Automatic

Flat Knitting Machines

WANTED

DESIGN & MANAGEMENT CORP.
Consulting Engineers for the Knitting Industry
82 Beaver Street, New York 5, N. Y.

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.

Wanted

large ring twisters D&F or Whiting make D&F mules 2" or 2⅛" gauge 300 or 360 spindles.

W-189, Textile World
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WANTED

Printing Machine

4 to 8 colors
60" face or wider
Large diameter drum

W-170, Textile World
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Chemicals, Dyes, Gums, Oils, Waxes, Greases, Pigments, Residues, By-Products, Wastes

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To supply monthly allotments of 44 GRAIN SLIVER

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We are seeking to purchase on behalf of a foreign buyer, large and substantial quantities of Worsted Suitings 14 to 17 ounces in weight. Overcoatings 28 to 32 ounces in weight. Please rush offers with full details and representative samples to us. All purchases will be on a cash basis.

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Wanted to purchase surplus yarns of all types — cotton, rayon, acetate, nylon, silk, wool, spuns, and blends.

W-947, Textile World
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COMPLETE REVERSIBLE CHENILLE RUG WEAVING PLANT

For the Manufacture of Complete Sets Rugs and Lid Covers For Bedroom and Bathroom. For Further Information Write

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SPECIAL OFFERING.

18 NEW FALES & JENCKS TWISTERS,
tape drive, ball bearing spindles, 4½"—3½" gauge.

COMPLETE WORSTED SPINNING PLANT
Bradford System

50—C&K 72" Looms, intermediate head motion, with motors.
12—Universal #50 Tube Winders.
8—D&F Woolen Frames, 192 sp. 4½" gau.
8—Saco-Lowell Spinning Frames, Worsted, 228 sp. 3½" pitch, 2½" caps.
6—Saco-Lowell Cotton Frames, 204 sp. 3" gauge.
1—Wool Opener and Duster.
5—D&F & Smith Mules, 300 & 375 Sp. 2½" gauge.
1—3-cyl. 60" x 48" dia. Woolen Card.
6—Furbush 48" x 48" Shoddy Cards.
12—Whitin 40" Cards, 12" coilers.
8—Woonsocket 8 x 4 Roving Frames.
1—D&F 48" Fearnaught Picker.
2—Cotton Pickers.
2—Collins Trap Worsted Twisters.
4—Prince-Smith Twisters, 180 sp, 3½" pitch, 2½" caps.
2—D&F Woolen Twisters, 120 spindles.
2—Brownell Twisters.
3—H & B West Twisters, 7" gauge, 8" traverse.
6—Haskell-Dawes automatic Thread Twisters.
1—Barber-Coleman Warp Tying Machine.
1—New Crocker High Speed Warper.
2—Smith & Furbush Shredders.
8—Universal #50, Winders, with motors.
1—Foster #102 Winder with motor.
2—Foster #12 Winders.
3—Foster #12 Cone Winders with skein attachments.
25—C&K 100" & 110" Blanket Looms, md.
35—C&K 92" 4 x 1 auto. Looms, md.
6—C&K 76" Worsted Looms.
36—C&K 68" Silk Looms.
2—Proctor & Schwartz 60" Feeders.

DYEING—FINISHING—PRINTING

COMPLETE WOMEN'S HOSIERY PLANT
COMPLETE KNITTING PLANT
COMPLETE FINISHING PLANT

3—Franklin & Obermaier Pressure Dye Kettles.
2—Copper Cans, 48" diameter 60" face.
2—Butterworth Package Dryers, complete with motors.
1—Tolhurst 60" Underslung Extractor, with 10 HP. direct motor.
2—V. V. & Tolhurst 48" Extractors.
3—Tolhurst 44" & 40" Extractors.
1—Gessner 78" Vacuum Extractor.
1—Butterworth stainless steel dye kettle.
1—New Stainless Steel 150 gal. jacketed kettle with motor.
1—Riggs & Lombard Wool Washer.
1—Rodney Hunt Slack Washer.
4—Stainless Steel 60" & 66" Dye Jiggs.
1—Butt. 3-roll 72" Calender, N.D.
1—National 6-fan revolving Loop Dryer.
1—P&S Loop Dryer for knitted cottons.
1—Proctor & Schwartz Dryer for knitted cotton.
1—Phila. Hurricane Stock Dryer.
1—Butt. 60'—80" Tenter Frame.
1—Morrison 60" Palmer Tenter Quetch.
4—Garnetts, 4-3-2-1 cylinders.
3—Stacks New stainless steel cans, 9 cans each, 23" dia, 66" face, complete with motor drive.
1—Sargent Raw Stock Wool Dryer.
2—Scouring Bowls, 36".
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1—Windsor & Jerauld 40'—60" Tenter Frame.
1—Perkins 100 ton 60" Hydraulic Calender.
1—R.B.&F. 6-color print machine, 42", complete with dryer, rollers, mandrels, motors.

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Brinton & Supreme Knitting Machines Chinchilla machines, 60" and 66".

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8 Worsted Hall & Stelle 160 Spindle Flyer Spinning Frames

6 x 2" Flyers—3½" Pitch Tape Drive—Equipped with V Belt for Motor Drive but without Motor

ITEMS 1244-1245

2 Cavagnaro Embossing Machines

Large Heavy Type 3 Roll Machines—But No Embossing Rolls Included—Take 60" Goods

ITEM 12208

Can Dryer

29 Tinned Steel Cans 144" Face x 24" Dia. Butterworth—3 Section Vertical

ITEM H-501

2 Worsted Twisters—Collins Bros.

2½" Ring—192 Spindle

ITEM 9866

Boil Out Machines

Includes Pumps & Foxboro Temp. Clock—Also Roll Up Machine—72"

ITEM 9755

Dewing Machines

72"

ITEM 9841

Whitin Tape-Condenser—New—Cotton

Model "C"—Serial 425000—Series—40" Width

ITEM 9945

Wooden Creel

85½" High—108" Long—7" Spindle—Centers for 220 Ends—3¼" Spindle—Centers for 440 Ends—Takes Paper Tubes

ITEM 10190 R

1—3 Cylinder C. & A. Tiger

All Belt Drive from 5 H.P. Motor—66" wide

ITEM 12149

Straight Type Creel—New

McBride—300 Ends—Suitable for 4" x 8" Roving Bobbins—Equipped with Brake & Elec. Drop Motion

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Gessner Steam Press

Jumbo Type 66" Wide

ITEM L-238

1 Acme Silk Skein Winder

72 end—Single Friction Drive 54" Skein—3" dia. Drive Flange

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BEAMER, 60" with steaming drum
BLOWER, New, Squirrel cage type
BLOWERS, R. C. 8 x 5 3/5" 350 cu. ft. per min.
BOILER, gas, Kane 3 HP.
BUTTON BREAKER, V.V. spiral.60"
BUTTON BREAKER, V.V. 50"
BELT, leather 3 ply 28" x ½" x 70" long
CALENDER, 3 roll 70" face
CALENDER, Kasterinsky 36" for knit goods
CLIPS, V.V. & W & J
DOUBLER, Windle, 60"
DRY CANS, set of 16, 72" x 23", dia. horizontal
DRY CANS, 7 Morrison 48" high pressure
DRYER, P&S Airlay
DRYER, P&S Loop
DRYER, Pin, Kenyon 5 tier
DYE BECKS, Stainless steel 4' to 20' New
DYE TUBS, 6' Wood complete motorized
DYEING MACHINES, Smith Drum Paddle type
DYEING MACHINES, Smith Drum Pocket type
DYEING MACHINE, Rochester Rotary 30" x 20". 3 pocket 20 lb. capacity
EMBOSSER, 54" K&G
EXTRACTOR, 26" Amer. Motor
EXTRACTORS, Beam 50" & 60" BB
EXTRACTORS, Open top Tolhurst 40"
EXTRACTOR, K & G 48", rubber lined basket
FANS, Exhaust 3 blade propeller 30", 36", 48"
FLAT FOLDERS, Elliott & Hall adjustable
HOISTS, Budgit 1 ton ½ ton capacity
INFRA RED units complete with blowers
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JIGGS, monel lined 60", 50" stainless steel
KETTLE, jacketed, tilting 70 gal. cap.
MOTORS, ¾ to 5 HP AC/DC 220 volt
PAD, 3 roll Hydraulic
PAD, 2 roll 50'
PALMER 62"
PRINT MACHINE, 10" sample or ribbon
PRINT MACHINE, 6 and 8 color 60"
PUMP, Worthington Vacuum, 18x9 complete with 25 HP motor
PUMP, Nash Hytor # H5
QUETCH, 2 roll BB 50" & 60" ball bearings
SCUTCHER, NEW
SHEAR, Hermas, 4 knife 70" wide
SHELLS, Wooden 40"-42"-44"-48"
STEAMER, 60" long, 54" dia. Cottage
TENTER FRAME, Pin W&J 30'x220" wide
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TUBER, V.V. with doubling attachment
WARP COMPRESSOR CREEL
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1—50" 3 roll V. V. Calender
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2—No. 90 Universal Quillers
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1— 4000 spindle Spinning & Weaving

1— 3400 spindle Spinning

1—20000 spindle Spinning & Weaving

1—27000 spindle Spinning & Weaving

1— 6000 spindle Spinning

WOOLEN & WORSTED

1— 6000 spindle Woolen and 6000 spindle Worsted Spinning

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5—18" Machines, 24 and 48 Feed

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3—sets 3 cylinder D&F 48"x 48" Woolen

5—D&F 48"x48" Roll Top

6—Whitin 49" Roll Top

2—sets 3 Cylinder Worsted 54"x54"

7—H&B Cotton

46—Pettee 40" Cotton Spinning

60—F&J Frames, 3½" Long Draft

20—Whitin 2½" Ring

15—S.P. 1-5/16" Ring

3—Whitin Spoolers 5" Gauge, Band Drive Twisting

9—F&J 1½" Ring

2—F&J 4" ring

2—S-L 4½" ring

1—F&J 5½" ring

3—Whitin 3½" ring Winders

6—Foster #101

4—Universal #90

3—Atwood 4F

2—Foster #12

3—Abbot 120 spindles

5—Foster #30

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8—Draper 90" Model O

14—Draper 32" Model P

340—Draper 55½" Model K

24—Draper 69½" Modified "D"

24—Stafford Auto. 54"

26—C&K 48" 4x1

170—C&K 56½" King Cotton

13—C&K 47" 4x1 Automatic

32—C&K 54" 4x1 Automatic

6—Fletcher 2" to 8" Garnetting

1—James Hunter 30" 4 cyl.

1—P&S 60" single cylinder

1—James Hunter 30" 3 cyl.

2—P&S 30" double cylinder

FINISHING EQUIPMENT

1—Winsor & Jerauld Tenter Fr. 40"

1—Set Horizontal Dry Cans, 23 Copper Cans, 105" wide

1—Set Vertical Cans, 40 Copper Cans, 105" wide

1—Butterworth 50" Dye Jigg, Stainless Steel

1—VV 54" 2 Roll Quetsch Ball Bearing, with Motor, Rubber Rolls

1—VV 50" 3 roll Quetsch, rubber Rolls

1—VV 60" Tubes, 2-50"

5—Textile Mixing Kettles, 100 to 200 gallons, Agitators

3—Lowell Cotton Slashers

3—Woonsocket 24 roll 86" Nappers double acting

1—Hermas 40" Cloth Brusher

3—C&M 40" Cloth Folders

PRINTING & ENGRAVING

7—Rice, Barton & Fales
- 1-8 color 64"
- 3-8 color 48"
- 1-5 color 54"
- 1-4 color 48"
- 1-3 color 45"

18—John Hope Pantograph Machines, 45" to 50", reconditioned.

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We own and offer for sale:

56 - 80½" Reedspace, Draper Automatic Quill Change, Double Drive Looms, individually motor driven, with electric warp stop-motion. Complete with 56 - 600 Hook Double Lift Jacquard Machines.

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8—Elliot & Fisher Billing Machines
1—I B M Time Clock for 100 People
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100—60" Wooden Cloth Shells
50—40" Wooden Cloth Shells
1—4½ HP —4 Separate Speeds 220 V.
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2—42" B. B. Scutchers
1—40 H.P. Motor (Slipring) 220-3-60
1—2 roll Geared Padder
1—36' 3 Roll Hydr. Calender 2 Paper rolls, 1 steel
1—54" Baby Palmer w/Blanket 20" Diam. Cylinder
1—Riggs & Lombard Woolen Washer, 4 Boxes, 60" rolls, 5 Boxes, 36" rolls

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10—Crompton & Knowles 1920 Model Duck Looms, Motor Driven with Motors. Will weave 62" Duck Varying from 7 to 30 oz. Also included is one beamer complete and two cop winders.
2—40" Curtis & Marble Cloth Folders—1924 Model.
1—34½" Kitson Harper, Motor Driven with Motor, completely rebuilt.
18—Deliveries H & B Drawing, Leather top rolls, 10" Coilers Ready for immediate delivery.
1—Cohoes Double Cylinder Slasher 7" x 5" Cylinder complete with double roll size box and controls.
100,000—Medium Whitin Quills Brass Bushed.
200,000—Skewers for 8" Saco-Lowell Bobbins.
1—Barber Colman Model 'K' Portable Tying-in Machine completely rebuilt.
1—Whitin High Speed Cage Section, 1941 Model to be used with either upstroke or downstroke cleaner.
72—Deliveries of H & B Drawing, 12" Coilers, Metallic Roll, 1922 Model.
24—Deliveries of Saco-Lowell Drawing, 12" Coilers, Metallic Roll.
2—8 x 3½ Woonsocket Speeders, 144 Spindles each, Motor Driven with 3 h. p., 220 volt motors.

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BENCH BRAIDERS

Approximately 150—20 carrier textile bench braiders for weatherproof wire, complete with benches, overhead take-offs and reels.

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MACHINERY FOR SALE *Immediate Delivery*

50—C&K 52" Box looms—2x1—16 Dobby individual motor driven ½ HP motor electric warp stop motions and temples fully equipped in excellent running order
50—C&K Automatic Box Looms 4x1 Box Looms 56" reed space 25 Harness Dobby Mechanical Warp Stop Motions Individual motor driven ¾ HP motor
14—Draper 80" reed space Automatic loom 28 Battery Cam motion Modified D Individual motor driven ¾ HP motors Mechanical warp stop motions completely equipped
28—Draper 47" reed space Automatic looms Midget feelers and Stafford thread cutters Some dobby, some cam 28 Battery Electric warp stop Individual motor driven ½ HP motors Looms completely equipped in running order
20—Attwood 5B Twisters 2½ in. rings 100 spindle Individual motor driven

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STAVE & ZISBLATT—Used Textile Machinery
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Six Furbush woolen cards 48 x 48 wood cylinder three cylinder card with ball bearing 30" card breast, and 16" metallic breast and Harwood feed.
Two Fearnaugh pickers.
Two dusters John Pettie make one a two cylinder machine and one a single cylinder machine.

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Repeaters, Lacers Card Cutters Jacquards of all description, also Plush Jacquards, Beamers

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HOSIERY MACHINES
used and rebuilt
KNITTERS—RIBBERS—LOOPERS—CYLINDERS—DIALS—TRANSFERS
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1—41" 5 Roll Granger Calender
2—42" Granger 2 Roll Schreiner Calenders
1—Stainless Steel Lined Morrison 10' Dye Beck, complete with motor.
1—Monel Metal Lined Morrison 5' Dye Beck, complete with motor.

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GOOD TEXTILE MACHINERY

McDOWELL ASSOCIATES

NOW AVAILABLE

Check this list—remember—it's only PARTIAL

CARDING, SPINNING & WEAVING

2—CONDENSERS RUBB for 60" Card, with 12" ring doffers

1—CONDENSER TAPE for 60" Card, 2 bank unit

10—Whitin New Model 40" Revolving COTTON CARDS

1—CARD, single Cylinder 48" x 48" with Hopper Feed and Rub Condenser

2—CARD, 48" x 48", wood faced cylinders, 4 cylinders per set, rub condenser, hopper feeders, clothed, etc.

4—CARDS, Davis & Furber, 3 cylinder, all iron, 48" x 48", complete and clothed, Rub Condensers

1—CARD, SAMPLE, complete

1—CLEANER, with Buckley Blade Beater, spiralwhirl type

2—CLEANERS, Vacuum, Mill type, motor driven

1—FEEDER, 40" automatic hopper for Card

1—FEED 40" automatic hopper with comb for Picker

4—GARNETTS, 60" and 48" units, 3 cylinder and 1 cylinder units.

2—JACKSPOOLERS 48" for 60 ends, pick clocks and compressor rolls

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200—DRAPER E LOOMS, 40", belt driven

90—DRAPER E LOOMS, 44", motor driven

200—DRAPER K LOOMS, 42", cloth, belt driven

48—DRAPER D LOOMS, 70", belt driven

70—DRAPER XK LOOMS, 48", motor driven, 20 harness

32—C. & K. LOOMS, 50", 2 x 1 and 4 x 1 box, motor driven, 25 harness

175—C. & K. LOOMS, 58", 4 x 1 box, motor driven, 25 harness

4—C. & K. WOOLEN LOOMS, 75", 4 x 4, 20 harness head motion, motor driven

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10—C. & K. LOOMS, 92", 4 x 1 automatic, 12 harness, motor driven

36—C. & K. LOOMS, 53" reed, 4 x 1 automatic, 25 harness, motor driven

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2—PICKERS, Rag, 20" x 30" diameter cylinders, B.B., apron feeds

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30—SPINNING FRAMES, 208 spindles each, 2¾" gauge, 1 13/16" ring

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INDEX TO ADVERTISERS

■ ■ ■

PROFESSIONAL SERVICES

Abert Co. 316
Lancaster, Alwine & Rommel 316
Loper & Co., R. E. 306
McPherson Co. 308
Robert & Co. ..... Second Cover
Sirrine & Co., J. E. 312
Wilkinson, Robert 316

■ ■ ■

SEARCHLIGHT SECTION

(Classified Advertising)

BUSINESS OPPORTUNITIES 318
EMPLOYMENT SERVICE 315
Raymond Service, Inc., Chas. P. 315
POSITIONS VACANT 315, 316
POSITIONS WANTED 316
SELLING OPPORTUNITIES 316
WANTED TO PURCHASE 318
USED EQUIPMENT 317-327
American Air Compressor Corp. 322
Bay State Textile Co. 320
Blank Co., Inc., A. & M. 322
Blank, Moe 320
Bresani, Joseph 322
Cadgene Machinery Co. 320
Chelsea Export Corp. 318
Chemical Service Corp. 318
Collins & Aikman Corp. 320
Consolidated Products Co., Inc. 319
Continentnal Cordage Co. 318
Design & Management Corp. 318
Doyle & Miller 322
Felta Co., Inc. 318
Gaines Textile Mchy. Co. 327
Kiss & Sons Inc., John 327
Machinery Liquidating Co. 317
Melvale Machine Wks. 326
McCloskey, Inc., John J. 327
McDowell Associate Inc. 323
Miller Machinery Co. 327
Morgan Mills 326
Morgan Dyeing & Bleaching Co. 324
New England Products Co. 318
New Orleans Mchy. Co. 326
Pantex-Mills Inc. 326
Paterson Silk Machinery Exchange Inc. 322
Pilgrim Rug Co. 318
Rabinowitz & Sons, Wm. 327
Republic Textile Eq. Co. 321
Salt, Jacob 327
Schegel Mfg. Co. 324
Schwartz Mfg. Corp., Sam 322
Seckler, Eugene 322
Speizman Co., Inc., Morris 325
Stave & Zisblatt 322
Stephenson, Harry 327
Textile Auxiliaries 322, 324, 326, 327
Triangle Eq. Co. 326
United Machy. & Tool Corp. 326
Wheeler Co., Frank W. 324

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14183—23—3¾" 260 N S & W Model K with Cradle Sole, French Heel, Picot, etc.
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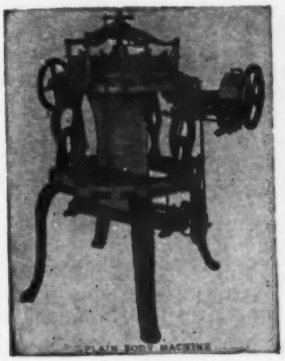
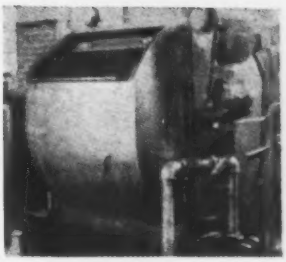
12960—15—2¼" 116 N Banners, High cylinder, Machines with Rubber Lay-in Att. and Stripers
13567— 3—2¼" 120 N 48 Ga. Banners with Stripers and Rubber Tops
13568—3— 2¼" 130 N 48 Ga. Banners with Stripers and Rubber Tops
13533— 1—2¼" 200 N 70 Ga. Banners Plain





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14307—2—SCOTT & WILLIAMS Ribbers 16", 8 feed, 10 cut
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INDEX TO ADVERTISERS

An * indicates additional data is in the 1946/47 Pre-Filed Textile Catalogs and Textile World Yearbook

*Abbott Machine Co. 214
Aberfoyle Mfg. Co. 212
*Acme Knitting Mach. & Needle Co. 305
Ainslie Knitting Mach. Co. 238
*Air Permeator Mfg. Co. 148
Aldon Spinning Mills 303
Alemite Div. Stewart-Warner Corp. 124
Allen Bradley Mfg. Co. Inside Back Cover
*Allis-Chalmers Mfg. Co. 7, 71
American Bemberg Corp. 208
American Cyanamid Co. Industrial Chem. Div. 145
American Gas Ass'n. 66
American Lumber & Treating Co. 184
American Magnesium Corp. 235
*American Monorail Co. 22
American Numbering Mach. Co. 296
*American Paper Tube Co. 182
American Pulley Co., The 12
American Thread Co. 201
American Viscose Corp. 205
American Woolen Co. 307
American Yarn & Processing Co. 308
Ansul Chemical Co. 150
*Arkansas Co., Inc. 179
Armour & Co. 283
*Armstrong Cork Co. 23
*Ashworth Bros., Inc. 24
Atlantic Rayon Corp. 276
*Atlas Electric Devices Co. 146
*Atwood Div. Farrel-Birmingham Co., Inc. 128, 129

Bailey, Frank 299
Baldwin-Duckworth Div. of Chain Belt Co. 82
*Barber-Colman Co. 44
Barco Mfg. Co. 36
Barnes Textile Associates, Inc. 304
*Becco Sales Corp. 249
*Birch Bros. 246
*Blickman, Inc., S. 293
Boger & Crawford 210
*Booth Co., Benjamin 258
Borne, Scrymser Co. 311
*Boulin Instrument Co. 304
Boyd Corp., Chas. P. 289
Breuer Electric Mfg. Co. 309
Bright Light Reflector Co. 154
Brinton Co. 307
British Industries Fair 181
*Brown Instrument Co. 187
Bryant Chemical Corp. 279
Bunting Brass & Bronze 85
Burkart-Schier Chem. Co. 298
*Butterworth & Son Co., H. W. 224, 225

*Caldwell Co., W. E. 313
*Cameron Machine Co. 301
*Carbide & Carbon Chem. Corp. 20
Carbomatic Corp. 285
*Carter Traveler Co. Div. A. B. Carter, Inc. 329
Celanese Corp. of America 234
Century Electric Co. 73
Ciba Co. 37
*Cidega Machine Mfg. Co., Inc 295
*C.I.T. Corp. 245
Cleveland Tramrail Div. The Cleveland Crane & Eng'rg. Co. 74
Clinton Industries, Inc. 144
Clipper Belt Lacer Co. 293
Cochrane Corp. 287
Coffing Hoist Co. 272
*Cole Mfg. Co., R. D. 190
Colgate-Palmolive-Peet 265
Commercial Credit Co. 168
Commonwealth Color & Chemical Co. 292
*Cooper Alloy Fdry Co. 31
Cooper Co., Chas. 190
*Crane Co. 86
*Crane Mfg. Co. 309
*Crawford Mfg. Co. 231
*Crompton & Knowles Loom Works 16
Crouse-Hinds Co. 165

Dana Warp Mills 303
Darnell Corp., Ltd. 186
*Dary Ring Traveler Co. 282
*Davis & Furber Machine 297
Day-Brite Lighting Inc. 137
*Dayton Rubber Mfg. Co. 59
Diamond Alkali Co. Standard Silicate Div. 311
Diamond Metal Prod. Co. 308
Dietert Co., Harry W. 288
*Dinsmore Mfg. Co. 307
Dixie Mercerizing Co. 133
Dixie Spindle & Flyer Co. 291
Dixon Lubricating Saddle Co. 270
Dodenhoff Co. Inc., W. D. 135
*Dommerich & Co., L. F. 38
Dow Chemical Co. 112
Dow Corning Corp. 264
*Draper Corporation 1
Drew & Co., Inc., E. F. .. 232, 277
*Du Pont de Nemours & Co., E. I. Electrochemicals Dept. 120
Finishes Div. 221

Edmos Products Corp. 206, 207
Emerson Apparatus Co. 293
Eriez Mfg. Co. 147

Falls Yarn Mills 256
Federal Electric Products Co. . 114
Felters Co., The 57
Firestone Industrial Prod. Co. . 35
*Fleishel Lumber Co. 312
*Fletcher Works 52
Formica Insulation Co. 169
*Foster Machine Co. 220
*Fuller Brush Co. 139

Gardner-Denver 48
Gates Rubber Co., The 78
Gaylord Container Corp. 149
General Chemical Co. 247
General Dyestuffs Corp. 65
General Equipment Co. 155
*Gessner Co., David 291
Gilmer Co., L. H., Div. U. S. Rubber Co. 27, 28
Glidden Co., The 46, 47
Globe Dye Works 160
Goodrich Chemical Co., B. F. 26
Gulf Oil Corp.—Gulf Refining Co. 45

Harte Co., John J. 302
Hayes Industries, Inc. 161
*H & B American Mach. Co. .60, 61
Heineman Corp., O. 302
Henry, Andrew K. 188
Hibbert & Co., Ltd., Jos. 84
*Hild Floor Mach. Co. 188
Hinde & Dauch 122
Hofmann Plants, Alfred 222
Hooker Electrochemical Co. .. 269
*Hough Shade Co. 268
Houghton & Co., E. F. 143
*Howard Bros. Mfg. Co. 14
*Hunter Machine Co. 259
*Huyck & Sons, F. C. 296

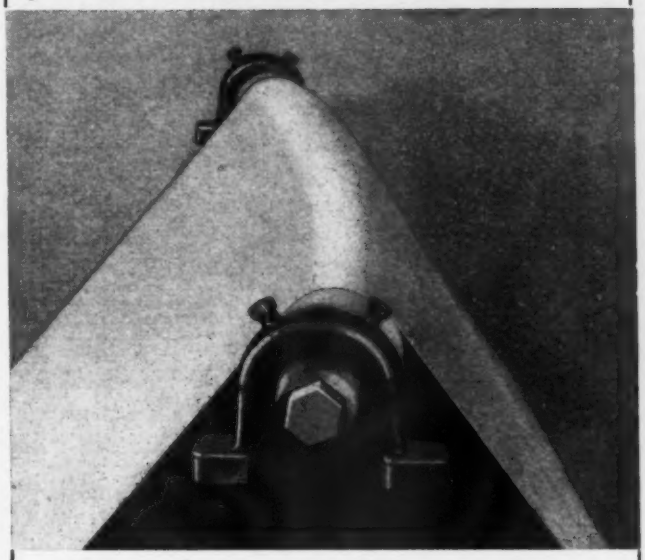
*Industrial Dryer Corp. 248
Industrial Heat Eng'g. Co. 250
Industrial Rayon Corp. 118
International Exposition of Textile Machy, Equip. & Supplies 10, 11
*International Salt Co., Inc. 202
*Iselin Co., William 153
*Ives Co., L. T. 309

Jenkins Bros. 53
*Jenkins Sons, M. W. 178
*Jiffy Textile Marker Co. 302
Johnson & Bassett Co. 295
Johnson Machine Works, Chas. B. 172
Joyce Machine Co. 171

Kahn & Feldman, Inc. 230
Kastrinsky Mach. Co., Inc. 305

(Continued on page 330)

Mount Hope Free-Wheeling EXPANDER



All Fabrics, Film and Paper-Many Uses

The Mount Hope Free-Wheeling Expander is regularly used to expand widthwise all types of fabrics, including rayon marquisette, and rayon and cotton tire cord, in conjunction with —

CALENDERS • CONTINUOUS DYEING MACHINES • DRY CANS • MERCERIZING MACHINES • WATER MANGLES • QUETCHES OPEN SOAPERS • TENTER FRAMES • STARCH MANGLES • DYE PADS — and in front of nip rolls everywhere in the mill.

Its advantages are as follows:—

1. Because the warp is subjected to minimum tension less bow than usual is required, resulting in extra long life for the Neoprene surface of the expander.

2. Expanders may be set at any desired angle to the cloth to adjust the amount of widthwise stretch produced.

3. Ball bearings, grease packed, are securely mounted in steel spools to outlast many Neoprene sleeve coverings, and so designed that they cannot stick nor turn on the axle and cut it.

We also make openers, guiders, plaiters, detwisters, tension control devices, continuous roll feeds, weft straighteners, bowed weft correctors, stainless steel pot eyes.

We will be glad to assist you, free of charge, with your cloth handling problems.

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42 Adams St., Taunton, Mass.

Representatives—John H. Andresen, Inc., 138 Grand St., Paterson, N. J.; Ingalls Engineering Co., 1214 Union Trust Bldg., Providence 3, R. I.; Slaughter Machinery Co., Charlotte 1, N. C.; Sidney Springer, 316 East Commercial Street, Los Angeles 12, California; W. J. Westaway Co., Ltd., Hamilton and Montreal 3, Canada.

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"WHEN I was asked, 'Gagnon, do you like your job?', I didn't know at first which one to answer for. I can, and have, done just about every job in this mill, where, by the way, the finest writing papers in the country are produced.

"My regular work is pattern making. But I've become a sort of trouble shooter here because I'm handy with all sorts of tools and, I'll wager, at one time or another, I've worked in every department in the mill. Been here for over 30 years and never missed a whistle. That ought to be the answer. I like my work, I like my Company and the men I work with are all my kind.

"I manage to keep busy outside of hours, too. Have a number of hobbies, some profitable, some just to keep me out of mischief. For one thing, I carve and sell wooden horses for carousels—merry-go-rounds to you. They must be good because I get orders from carnivals all over the East. I built my own house, my own way, with my own hands. I'm a hunter of the first water. Two years ago shot a record bear—425 pounder. Do some guiding, too, now and then, and believe it or not, I've tamed two foxes. Spend my spare time entertaining at Veteran and Fraternal Clubs.

"Maybe you think that this is a lot of work for one man. It does keep me busy but it also keeps me happy. I wouldn't be a good State of Mainer if I didn't like to work hard and well.

"So when you ask me if I like my job, my answer is—'You bet'. All of 'em."

William Gagnon

What William Gagnon says, if carefully analyzed, constitutes an invitation for you to establish your industry in Maine. The State of Maine takes great pride in its industrial workers. They are capable, loyal and happy. The success of any industry depends upon the availability of workers with those characteristics.

If you are thinking of moving, expanding or decentralizing, it will pay you to investigate the possibilities of a location in industrial Maine. Send for the free booklet, "Industrial Maine".

STATE OF MAINE — TEXTILE INDUSTRY

MAINE DEVELOPMENT COMMISSION, STATE HOUSE, AUGUSTA, MAINE

(Continued from page 328)

Kelley Gear & Tool Co..... 310
*Kenyon & Son, D. R..... 311
Kidde Mfg. Co., Inc..... 239
Kiwi Engineering Co..... 258
Knitting Arts Exhibition..... 244
Kohorn & Co., Ltd., Oscar... 189

Lacy, Atherton, Wilson & Davis 289
Lambeth Rope Corp..... 297
*Lane & Bros., Inc., W. T..... 309
*Laurel Soap Mfg. Co..... 227
Lazenby & Co., F. A..... 256
Leatex Chemical Co..... 258
*Leighton Machine Co..... 242
Lestershire Spool & Bobbin Co. 199
Lewellen Mfg. Co..... 285
Lincoln Engineering Co..... 51
*Link-Belt Co..... 62
*Liquid Conditioning Corp..... 191
*Loper Co., Ralph E..... 306
*Lowell Shuttle Co..... 180
Lukens Steel Co..... 29

*Maguire & Co., J. P..... 176
Maher Color & Chemical Co.. 33
Maine Development Commission 330
Manhattan Rubber Div..... 67
McGraw-Hill Book Co..... 284
McPherson Co., The..... 308
Meadows Mfg. Co..... 30
Merit Refolding, Baling & Casing Co. 287
Merrow Machine Co..... 305
Mid-West Processors Co..... 164
*Milton Machine Works..... 298
Moisture Register Co..... 310
*Monsanto Chemical Co..... 39
Mongomery Co. 300
*Mt. Hope Machy. Co..... 329
*Murdock & Geb Co..... 313

*National Aniline Div. Allied Chemical & Dye Corp..... 79
*Nat. Drying Machy. Co..... 297
National Lead Co..... 64
National Plastics Prod. Co.... 175
*National Ring Trav. Co..... 303
National Technical Laboratories 151
*New Departure Div. General Motors 13
New England Machine Co..... 42
N. Y. & N. J. Lub. Co..... 267
Norfolk & Western Ry..... 266
North American Rayon Co..... 216

*Oakite Products, Inc..... 295
*Onyx Oil & Chemical Co..... 209
Oronite Chemical Co..... 163
*Otis Elevator Co..... 50

*Pabst Sales Co..... 286
*Paramount Textile Machy Co.. 240
Parks-Cramer Co. 290
Penick & Ford Co., Ltd..... 313
Pennsylvania Salt Mfg. Co.. ..273
*Perkins & Son, Inc., B. F..... 34
Permutit Co. 185
Philadelphia Quartz Co..... 252
*Pittsburgh Corning Corp..... 263
Platt Bros. & Co., Ltd..... 84
*P.O.M. Co. 300
Portman Mach. Tool Co..... 256
Powell Co., Wm. The..... 72
Prince George Hotel..... 304
*Prince-Smith & Stells..... 32
Procter & Gamble..... 281
*Proctor & Schwartz, Inc. 236, 253
Progressive Mach. & Tool Co. 299

Railway Express Agency, Air Express Div. 152
Railway Supply & Mfg. Co... 255
Raybestos - Manhattan, Inc. Manhattan Rubber Div. 67
*Raytheon Mfg. Co..... 19
Rayonier Inc. 183
Red Ray Mfg. Co..... 294
Reed Machine & Tool Engrs.. 310
*Reiner Inc., Robert.....218, 219
*Reliance Electric & Eng. Co... 217
Republic Steel Corp..... 69
Reynolds Metals Co..... 215
*Rhoads & Sons, J. E..... 5
Richmond Oil, Soap & Chem. Co. 286
*Riggs & Lombard, Inc..... 250
*Robaczynski Mach. Corp..... 233
*Robert & Co., Inc. Inside Front Cover
Robison Processing Co..... 246
*Rohm & Haas Co..... 88
Rome Soap Mfg. Co..... 311
Royersford Needle Works..... 213
Ryerson & Son, Inc., J. T..... 110

*Saco-Lowell Shops 6
*Sandoz Chemical Works..... 17
*Sarco Co., Inc..... 49
*Scholler Bros., Inc..... 243
Scott & Williams, Inc..... 241
Sinclair Refining Co..... 68
Sirrine & Co., J. E..... 312
*Smith, Drum & Co.....228, 229
Socony-Vacuum Oil Co.....15, 25
*Solvay Sales Corp..... 251
Somerset Engineering Corp.... 162
*Sonoco Products Co..... 131
Southworth Mach. Co..... 294
Square D. Co..... 173
Standard-Coosa-Thatcher Co. . 223
*Standard Fabricators, Inc..... 81
Standard Pressed Steel..... 77
*Standard Soap Co. of Camden 254
Stanley Works, The..... 177
Stearns Magnetic Mfg. Co..... 274
Steelcote Mfg. Co..... 328
*Steel Heddle Mfg. Co.....157, 158
*Sterling Ring Trav. Co..... 248
Stonhard Co. 280
Sun Oil Co.....8, 9
*Supreme Knitting Mach. Co.. 211
*Sylvania Div. Am. Viscose Corp. 275

Taber Instrument Co..... 306
Talcott Inc., James..... 260
Taylor Instrument Cos..... 54
*Tennant Co., G. H..... 170
Tennessee-Eastman Corp. 83
*Terrell Co., Inc..... 300
Texas Co. 2
Textile Banking Co..... 257
Textile Industry Research Co.. 298
Textile Machine Wks.....75, 76
Tompkins Bros. Co..... 200
Torrington Co., The.....55, 56

Union Pacific R. R..... 40
U. S. Gutta Percha Paint Co.. 21
*U. S. Ring Traveler Co..... 278
U. S. Steel Supply Co..... 85
U. S. Testing Corp..... 166
*United Steel of America, Inc.. 70
United Yarn Prod. Co..... 303
*Universal Winding Co.....18, 140

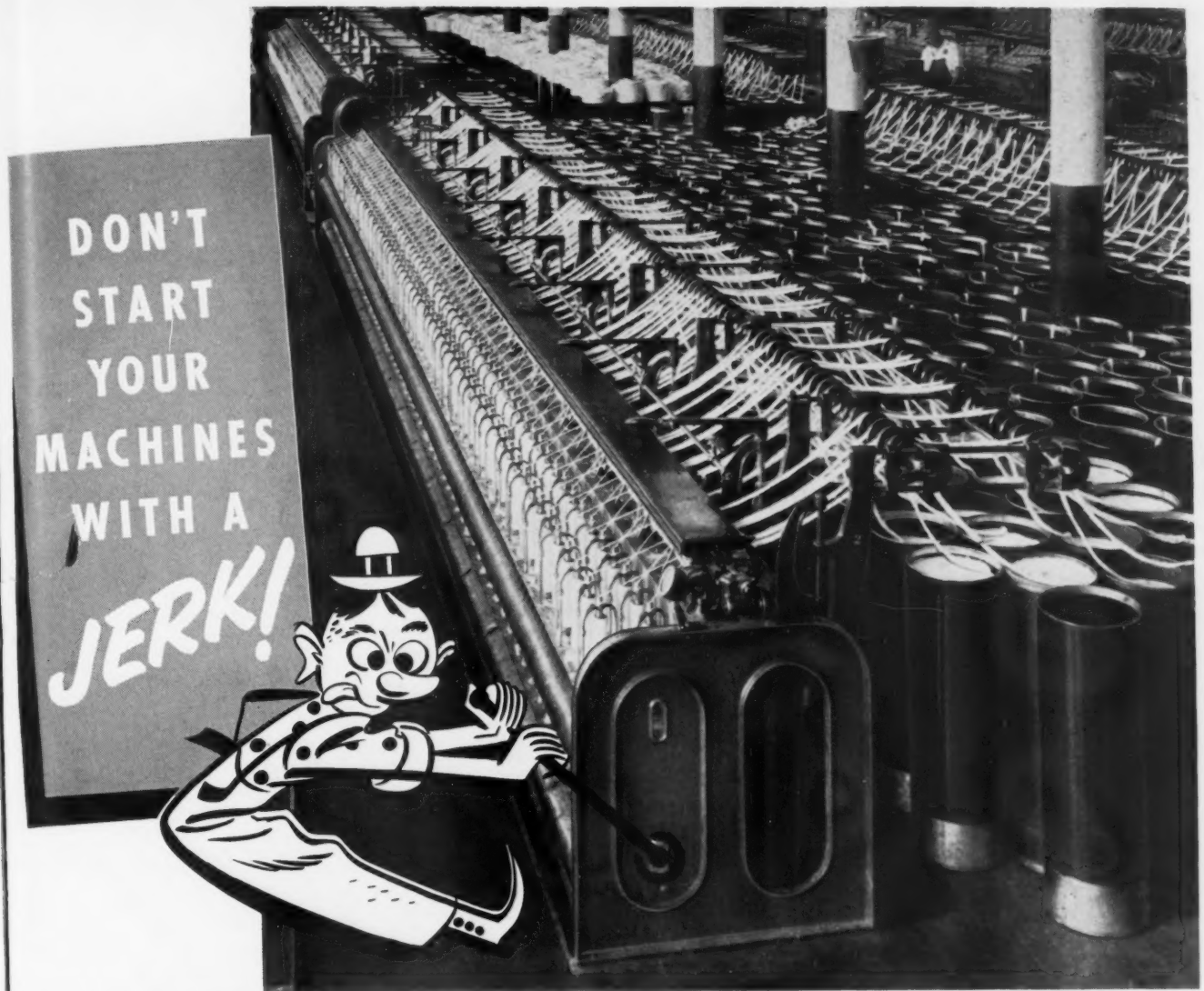
*Van Vlaanderen Mach. Co.... 63
*Veeder-Root, Inc. .....Back Cover

WAK Industries 312
Waldron Corp., John..... 299
Wallerstein Co., Inc..... 116
*Walton Laboratories 174
War Assets Administration.80, 314
Wassell Organization 156
Watson-Williams Mfg. Co..... 306
Wayne Mfg. Co..... 258
*Werner Textile Consultants, Inc. 300
Weston Electrical Instrument Co 159
*Whitin Machine Co..... 203
Whitinsville Spinning Ring Co. 303
Whitman & Co., Wm..... 204
Whitney Chain & Mfg. Co.... 43
Wildman Mfg. Co..... 237
Wiley & Sons, Inc., John..... 301
Wilkens-Anderson Co. 252
Willcox & Gibbs Sewing Mach. Co. 192
*Wolf & Co., Jacques..... 271
Wolstenholme Co., The..... 303
*Worthington Pump & Machy. Corp. 58

York Corp. 167

*Zephyr Laundry Machy. Co.... 41

Searchlight Index—See p. 324



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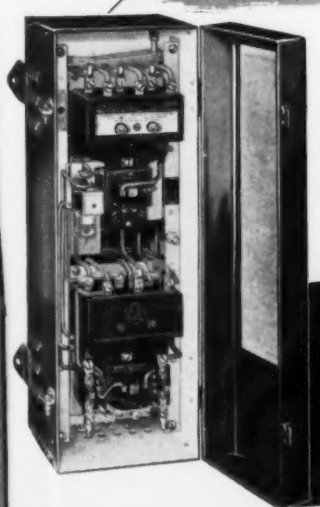

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